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### An Address.<sup>1</sup>

#### THE POST-WAR REHABILITATION OF SCIENCE.

By J. G. WAGNER, B.Sc., M.B., Ch.M.,

President of the Queensland Branch of the British Medical Association.

THE year 1945 will be entered in the annals of world history as that which marked the fall of the tyranny of the Axis, and the victory of the United Nations as champions of democracy, over the evil powers of their enemies. No one who witnessed the exuberant and spontaneous joy of "V.P." day and compared it with the restrained celebration of "V.E." day a few months earlier, could doubt that the attainment of victory and the restoration of peace had long been the earnest hope of all our people. And though the present universal turmoil appears to deny the world's aspirations towards freedom, yet in itself it is an expression of the freedom that has been restored, even though the celebrations savour too strongly of the time-honoured folly of cutting off one's nose to spite one's face. Even if at present the omens are unpropitious, the building of a structure that will place war outside the pale of civilization and allow mankind to devote its energies to the proper pursuit of the arts of peace, must surely be one of man's noblest aims, to be pursued equally by all peoples. There still remain enemies to be conquered, enemies whose conquest will require all man's skill and knowledge and energy. These enemies are poverty and ignorance, crime and disease.

Even more than its predecessor, World War II has been remarkable for the use made by the belligerent nations

of available scientific knowledge, and the development of scientific research to provide new methods for the prosecution of the war in all its aspects. The range of this activity is so vast that one person could hardly be familiar with more than a small portion of it. When we think of such things as magnetic mines, "degaussing", "radar", jet propulsion of aeroplanes, improvement of fuels for internal combustion, synthetic rubber, tanks, landing craft, bulldozers, camouflage, bombsights, "Fido", "Pluto" and a thousand and one things culminating in the development of the atomic bomb, we begin to realize how far the application of science to war has proceeded in these fields. In the domain of medicine we are more familiar with the developments that have taken place. The use of sulphonamides and of penicillin in the treatment of wounds and illness, the modern treatment of shock, the application of blood transfusion, the control of malaria, to quote but a few—these are stories whose romance is well known to us.

That the application of science to war has been reasonably effective is all the more remarkable when it is remembered that we have not yet completely shaken off the domination of ignorance amongst men in high military and political command. There is cause for thankfulness that the bad old days of the Crimean and South African campaigns are almost entirely gone. How otherwise could our troops have survived in New Guinea and Borneo? No tribute can be too great to the efficiency and devotion of the medical services in these areas, and to the enlightened leadership which allowed them to function. Nevertheless, it happens only too frequently that the scientific expert who knows how to perform a particular task is frustrated by a higher authority, fully charged with ignorance and its concomitant inferiority complex. For example, in World War I, although the importation of fruit had been recommended as essential by the scientific advisers to the British Board of Trade, the British Government showed clearly that it had not learnt the lessons in

<sup>1</sup>Read at the annual meeting of the Queensland Branch of the British Medical Association on December 14, 1945.

nutrition taught by Captain Cook in the eighteenth century. In Germany at the same time the importance of vitamins was not realized by government authorities, and the population was stricken with deficiency diseases and lowered morale on the home front, together with an enormous increase in the incidence of tuberculosis. Such instances could be multiplied a thousandfold.

But now the war is over. The time has come to beat the swords of war into the ploughshares of peace. The problems of rehabilitation are before us, involving the reestablishment of men and women in useful civilian and peace-time activity. No phase of this problem is more important than the rehabilitation of science, by which I mean the harnessing of all our scientific knowledge to the problems of peace, and the enlargement of that knowledge by intensive research. How, then, can we achieve this objective? The answer is that it can be done only by an intelligent appreciation by political leaders in every country of the scope of science, in regard to both the fullness of its knowledge and the shortcomings of its ignorance which indicate the need for research. The inevitable consequence of this state of mind would be a determination to use science to the full for the betterment of mankind without fear of political consequences.

In making this plea one must admit that already much has been done; but in the field of medical science, and in Australia, much remains to be done. For example, the measures taken for the treatment of patients suffering from tuberculosis on the one hand, and for the eradication of tuberculosis from the community on the other, would be no credit to a prehistoric civilization which could not be expected to know any better. It is true that in Brisbane a sanatorium will shortly be built, and this is a step in the right direction. At present the compulsory notification of tuberculosis as an infectious disease has no value except from a statistical point of view. Surely the role of a government in this matter is to obtain the advice of its experts and to follow that advice—to provide facilities for a survey of the population, for accurate diagnosis, for adequate treatment, and above all for maintenance of the sufferer and his dependants as long as is necessary. In the matter of prevention, why should the infective patient not be isolated? How incongruous to allow an infective patient to broadcast tubercle bacilli throughout the community when the leprosy patient is compelled to submit to strict isolation! Surely it is just as culpable to allow tuberculous milk to be distributed, when we know how to prevent this risk. The presence of arsenic in fruit and vegetables rightly is a matter for strict and constant supervision; the danger of the tubercle bacillus in milk demands equal vigilance.

In many parts of Australia, mosquitoes cause considerable discomfort and ill-health. Filial infection is more widespread than is generally realized, dengue epidemics are familiar to all of us, malaria is common in the north and occurs in non-tropical areas. Some day we may have to grapple with yellow fever. It is years now since the town of Toowoomba was persuaded to undertake intensive mosquito control and proved that such an idea was no more than practical common sense; but progress in this respect in other areas is still in its elementary stages. The amount of money spent on mosquito nets, mosquito spirals and sprays—all more or less ineffective as far as the main problem is concerned—would go far towards the cost of a thoroughly efficient mosquito control organization, and increased industrial efficiency and decreased loss of work and wages must also be regarded as an offset against the cost. Here again we have failed to use our proved knowledge to our immediate advantage.

Some day, perhaps soon, in this age of rapid transport, smallpox will descend on Australian communities in wholesale fashion. Outside that large number of discharged service personnel who have had the boon of compulsory vaccination, there is an enormous pool of susceptible population through which an epidemic of smallpox would rage with devastating effect, and yet there is no public conscience in favour of compulsory vaccination for civilians.

The problem of venereal disease in the community is one of major importance, and yet one in which a determined

effort in the application of known methods of prevention and treatment would reduce the incidence to a minor figure. It only requires public opinion and political leadership to decide firmly enough its policy in such a matter to enable experts to carry out measures adequate for the purpose.

In the matter of "quack" and patent medicine advertising, untold harm is done to a long-suffering public by their pathetic belief in the printed and spoken word. The impact of the old familiar advertisement in the Press, and particularly of the newer blaring radio broadcast, is so powerful that it is easy to understand its effect on gullible people. But it is not so easy to understand why an intelligent government, with skilled advisers to inform it, will allow its citizens to be robbed in pocket and damaged in health by the application of these confidence methods. In this field there are signs of a movement towards better things. I refer to the censorship established by the Australian Press over medical advertising, and I have heard of the banishment of worthless preparations from the Queensland market by government activity. But much more remains to be done before we can claim that we as a community are using our knowledge for the public benefit.

Passing to the matter of research, we come to a field so vast as to be intimidating; yet science need not be overawed any more than General MacArthur was when faced with the problem of the Pacific. Every giant has chinks in his armour. The MacArthurs of science infallibly find them and proceed to topple the monster. What is needed everywhere is for governments to choose their MacArthurs and Mountbattens, their Montgomerys and Eisenhowers, and provide them with the means to carry out their campaigns. This, of course, needs money, and as finance is alleged to be the test of good government, criticism of apparently wasteful expenditure will lead to the downfall of any government, unless it can be shown that the money so spent provides a direct benefit in hard cash for the electors. The parliamentary candidate needs to be able to show such concrete things as schools and bridges and hospitals—to say nothing of financial grants to this section or that—which have been provided by himself and his party, and, moreover, he needs to be able to promise more and bigger and better things for the future. And whilst politicians and public give lip service to research in their more expansive moments, she remains a Cinderella when budgets are being framed.

I am aware that the British Government is making extensive plans for research, that in Australia the National Health and Medical Research Council and the Council for Scientific and Industrial Research are well-grown stripplings, and that the Queensland Medical Research Institute is in its prenatal stage. All this is good; but in general, ten times the amount of money proposed could be well spent on scientific research and room would still be left for more.

And while we are speaking about money, let us not forget about men as the chief instruments of research. These are no ordinary men. They conform to no regular pattern. They are flowers of such rare blossom that it is wicked to allow them to waste their sweetness. Yet here in Australia we have examples of research men of proved merit condemned to spend their days in useful routine work, when all they need is the opportunity to go on with research work already planned. Imagine Melba in the village choir! Imagine Phar Lap in the plough!

Think of the research work to be done in medicine, and do not forget the need for research in pure science, in agriculture, in forestry, in engineering, and in almost every sphere of human activity—the gathering of knowledge and its application for the benefit of mankind.

One field of research requiring development is that concerned with hours of work in industry. So far this has always been a political matter; but the nation can no longer afford it as a political plaything. For every human activity there must be an optimum number of hours of work per week, when regard is paid to the welfare of the worker, the output of industry, the needs of the public and every other pertinent factor. This is a question that can and should be determined by scientific method.

In similar fashion the determination of the basic wage lies within the province of the science of mathematics rather than that of legal disputation. Basic needs in food, clothing, housing *et cetera* are known factors, and together make a total which, like a scientific law, is correct in all circumstances and under all conditions.

There is a phrase that is frequently quoted to the effect that the expert should be "on tap, but not on top". Such a saying may be true when experts such as the water diviner command high salaries in the departments by which they are employed, and when their advice is preferred to that of the trained and experienced geologist, or in the medical field when addle-pated and psychopathic pseudo-experts are placed in charge of important activities for which they are utterly unfitted. Appointments such as these arise because the true expert is on tap, but not on top. If we have to wait until general public opinion is sufficiently well informed in matters of this kind, many generations will have lived and died before the community gets the benefit of that scientific knowledge which is at present available to us.

We have an example of this attitude in the persistent refusal in Queensland to appoint as members of hospital boards doctors and nurses who may well be regarded as experts in hospital affairs and in matters relating to the care of the sick. I do not hold that hospital boards should be composed entirely of doctors and nurses (although such a plan might well be an improvement on the present set-up); in my opinion the composition of a hospital board would be vastly improved, in the public interest, by the appointment of doctors and nurses to it. But these, being experts, are unfit to be on top, they must merely be on tap. In these circumstances it is fortunate that such expert advice as is on tap usually commands a good hearing, though this is not always so. (I am reminded of the story of the dominating husband, who propounded to his wife an infallible formula for domestic harmony; he agreed that she should have her way whenever they were in agreement.)

In short, until such time as the conduct of human activities with a scientific basis is placed in the hands of men and women who by virtue of sound training and experience fully understand the problems with which they have to deal, we can expect nothing but retardation of normal progress in the rehabilitation of science.

But to go further in this matter of direction of the nation's activities, I submit that on the topmost rung of national affairs, there is a lack of the necessary leaven of science in the parliaments and cabinets of Commonwealth and States. The absence of a scientific outlook at this level is something that we can ill afford. We have little enough to boast about in the general level of intelligence—quite apart from scientific training—of those whom we honour with the duty of representing us in our national councils. The most that we appear to achieve is a group of people who, by virtue of greater or less experience, and by association with their subordinate technical advisers, blossom forth as experts in their own right, and begin to rush in with their own expert opinions where their subordinates have feared to tread. So it happens that men and women of science for all practical purposes are disfranchised, since their influence as electors is nil, their influence as technical advisers is minimal, and their influence in parliaments and cabinets is infinitesimal.

The responsibility for this state of affairs lies heavily on scientists themselves. It is their public duty to take an active interest in politics, to make themselves available as political candidates, however much they may shrink from the hurly-burly and from other sacrifices entailed.

Thirty-three years have elapsed since the University of Queensland produced its first graduates, who now have attained some degree of maturity. How far have they been able to influence the public life of Queensland? On the face of it, very little. Yet it would be saddening to think that their unseen influence in the community had not been a source of great benefit. This, however, is not enough. We cannot expect intelligent government until a sufficient number of intelligent, well-trained men and women apply

their faculties to the problems of government. We cannot expect a scientific outlook on scientific problems where there is no scientific training, and without these conditions no government can use science for the benefit of the governed to its fullest capacity.

Democracy has triumphed; let it go forward hand in hand with science towards a greater future for mankind.

## A SOCIOLOGICAL STUDY OF THE ABORIGINES IN THE NORTHERN TERRITORY AND THEIR EYE DISEASES.

By MICHAEL SCHNEIDER,  
Major, Australian Army Medical Corps.

### The Sociological and Psychological Background.

DISTRIBUTED over an area of about 500,000 square miles, comprising the Northern Territory, are some 15,000 full-blooded aborigines. A number estimated at about 6,000 and classified nomadic<sup>1</sup> have had very little contact with, and live outside of, European influence. Approximately 50% of these are to be found in Arnhem Land. Approximately a further 6,000 live in supervised camps, and the remaining 3,000 or thereabouts are in regular employment.

The nomadic group live the way of their ancestors. Free and fearless, they roam in their tribal country eking out an existence on what can be gathered from the soil, the plants and water, and by the chase. They have no knowledge whatsoever of food production and conservation. Those residing in supervised camps have become almost entirely dependent on the white man for their existence. At intervals a primitive urge to go "walkabout" compels them to disappear into the trackless wastes and bush, and to live the way of their ancestors. The third group, classified as in regular employment, occupy a social position somewhere between the nomadic and the supervised camp inhabitants. They are employed chiefly on cattle stations as cattle musterers, gardeners, goat herders, hewers of wood and drawers of water. In return for their services they are provided with a ration of flour, sugar, tea, tobacco, a little beef, and a lot of offal. At times, which in the northern areas correspond to the monsoonal wet season, many station managers send them into the bush to live in their primitive way, in country largely depleted of food and game owing to the invasion of the white man's cattle.

Native habitations are never clean, and those connected with cattle stations are extraordinarily filthy and squalid. Some three or four feet high, constructed of any available local material—boughs, odd pieces of iron sheets, bags, scraps of canvas, with the earth as a floor and the roof a sloping extension of the walls—they provide but slight protection against the elements. Scraps of food lie on the ground and adorn the forks of adjacent trees and shrubs or the roof of the wurlie. Innumerable lean, flea-infested dogs slink about uneasily. There is no pretence at sanitation, and water may be in a distant stream or billabong. In these surroundings the aborigines squat, or lie on dirty blankets or canvas or on the ground. Clothing if worn is never washed. In the dry areas flies are clustered over scraps of food, refuse, dogs and human beings alike, and add to the general misery.

In the nomadic state the natives move from one site to another in their search for food, and the elements cleanse the vacated sites.

During the last six or seven decades, more and more tribal hunting grounds have been alienated from the aborigines and occupied by pastoralists. The consequent competition between cattle and native animals has invariably led to a considerable reduction in the number of the latter. Spearing of cattle is denied to the natives, and with game becoming progressively more depleted, the erstwhile possessors of the land have been compelled either to seek help from the cattle station managers or to perish. This has produced a gradual drift from the independent free nomadic



state to that of subservience to the white man. This drift has been considerably accelerated during the war by the army in its search for local labour.

As a nomad the aboriginal has a dignified bearing and behaviour indicative of freedom and independence. Once he has sold his birthright for a mess of pottage by accepting the white man's dole, his character changes completely. His face betrays his servility and shame, and his eyes reveal his fears and doubts. Some few aborigines can adapt themselves to our world, but the vast majority fail hopelessly. This failure cannot be entirely ascribed to the white man's lack of interest, greed, intolerance or fears. Many teachers have attempted to educate them and missionaries to Christianize them, and at the present time unionists wish to enlist them under the same wage awards as white men.

It is the aboriginal himself who is unable to "make the grade". Not only is he unable to adopt our mode of life, but the mere attempt spells annihilation and extinction for him. Separated from us by countless generations of evolution, he has a simple, child-like mind which cannot assimilate what we have to offer. His mind has developed on an entirely different evolutionary scheme; it is a scheme in which his environmental economy is all-important. He has become a part of it. From his earliest years all his activities, physical and mental, have been related to it. The plants and trees, animals and birds, the fish and streams and waterholes, the rocks and hills, the clouds and rain, the wind, the stars, the sun and moon, all are of the greatest significance to him, not only in his sole practical avocation of food gathering, but still more so in his totemic existence. Of much greater importance to him than actual parents are his totemic forebears who created these natural objects. These natural objects form an integral part of his life and his conception of the future world. They are the basis of his health and happiness, his beliefs and his survival. He has struck a balance with nature in the same manner as our unique fauna and flora have done. When he is severed from this association, his psychological make-up never recovers, his joy and happiness disappear, his life becomes empty and purposeless, and he declines and degenerates into a pitiable outcast.

No matter how well-meant and willing our efforts, we cannot obviate this decay. The native simply cannot bridge the gulf separating his world from ours. This decay is not obvious to him. He begins by adopting a passive attitude to our world, and this is rapidly followed by indifference to his personal welfare, to his survival, and to the survival of his race. His *lubra* in consequence practises abortion and infanticide, neither of which is countenanced in the nomadic state, with perhaps the exception of multiple births, in which case the environmental economy may exact a relevant ruling. Furthermore, when he is in this stage of decay he seeks the few small pleasures which he associates with the white man—flour, tea, tobacco, calico, knives, hatchets and in some instances opium and alcohol. He accepts the comparatively poor food doled out to him and passively abandons the food, environment and social structure more suited to his existence. Being incapable of abstract thought, he cannot assess the comparative advantages and defects of the two states.

The white man's attitude to his black employees can be summed up by the statement that it is motivated by gain, but is otherwise one of complete indifference. This applies almost universally. Few cattle stations would be solvent but for the cheap source of labour supplied by the natives. All too frequently in return the native is not viewed as an indispensable servant, but is despised and spurned, and tolerated only if he is able-bodied and useful. This indictment must be modified in the case of many cattle owners who support non-working dependants of their black employees. Unfortunately, ill-advised legislation tends to penalize employers who adopt this humane practice.

This, then, briefly outlines the sociological and psychological background of the aboriginal in the Northern Territory. The impressions thus penned were formed during a sojourn of some twenty-one months in the area with Australian general hospitals. It was during the

period when the Australian Army Medical Corps included the aborigines in its care. Excursions were made to various localities along the Stuart Highway (Alice Springs to Darwin), to the large rivers—Roper, Victoria, Daly, Adelaide and Katherine. Natives were examined where they were found, and in particular at the cattle, police and mission stations, and at Army native camps; occasionally also the roaming food-gatherer was examined.

Of the general diseases encountered very little will be mentioned, apart from the enumeration of those most commonly seen, with a note on their frequency rate. The eye diseases were noted more carefully.

### General Diseases.

#### *Yaws.*

Yaws or serologically allied disease (Cleland<sup>(1)</sup>), has probably been with aborigines from time immemorial. Its incidence is remarkably high.

In a series of 38 consecutive cases among adults examined serologically in one month at an Australian general hospital, the blood of 36 yielded the Kline reaction. Of 11 infants and children examined in the same series the blood of two yielded the Kline reaction.

#### *Leprosy.*

Leprosy was introduced by Chinese indented labourers towards the end of the last century (Cook<sup>(2)</sup>). There are probably between 200 and 300 lepers amongst the northern tribes distributed almost entirely in the coastal regions (Kirkland<sup>(3)</sup>).

#### *Malaria.*

Malaria may have been introduced to the Arnhem Land coast by Macassars prior to its occupation by white men. Matthew Flinders wrote of "ague" amongst the natives on this coastline. Because of the absence of intertribal intercourse it is highly improbable that the disease extended inland. It was probably introduced into the area between Darwin and Katherine by miners from New Guinea during the mining boom at the latter end of last century and the early part of the present century. Its incidence is not high. Benign tertian malaria is endemic, and occasional epidemics of malignant tertian malaria occur and are associated with a high mortality rate.

#### *Hookworm.*

In the higher rainfall areas north of the Roper River it is assumed, owing to the frequency of eosinophilia, that intestinal parasites must be common. Some 50% of subjects with eosinophilia pass ova of hookworm in the faeces (Andrews<sup>(4)</sup>). The disease is highly endemic along the coastline, around the northern coastal streams and in adjoining islands. It leads to a greater degree of morbidity and mortality than is generally realized. Apart from the deaths more directly ascribed to the anæmic condition itself, the profound secondary anaemia resulting from the infection renders many subjects prone to certain intercurrent diseases, to which they succumb.

#### *Tuberculosis.*

Pulmonary tuberculosis is found in a moderate number of cases—fewer than one would expect in a people with no knowledge of cleanliness and hygiene. Their outdoor mode of life may be a modifying factor. Extrapulmonary tuberculous infections are fairly common (Kirkland<sup>(5)</sup>). This may be ascribed to the fact that bovine tuberculosis is common amongst cattle in some parts of the Northern Territory, and natives almost invariably eat their food only partly cooked.

### Eye Conditions.

#### *The Conjunctiva.*

One commonly finds collections of dark brown pigment in the conjunctiva of the lids and bulbs of adults. They tend to be localized into the larger accumulations in the areas normally exposed when the eyes are open. The *caruncle* and *plica semilunaris* sometimes share in this



lavish distribution of pigment. Because infants and children are devoid of these collections of pigment, they must be classified as acquired. Occasionally a complete ring of pigment surrounds the cornea, usually but not invariably separated by a space of about one millimetre from the limbus. These rings are from 1.0 to 1.5 millimetres in width.

#### The Iris.

The colour of the iris is always dark, varying between chocolate-brown and almost black. Owing to lack of contrast between iris and pupil, it is difficult to define the pupillary edge in daylight.

#### The Fundus.

The fundi are almost invariably of a uniform slaty-pink colour, and chorioidal vessels cannot be seen. By contrast, the optic nerve head is apparently, but not actually, paler than in Europeans. Rarely, the fundus background is of a paler shade of pink or red resembling the colour in European eyes.

#### Visual Acuity.

Tested with the Snellen illiterate chart, the visual acuity as a whole approximates that of Europeans. Of a series of 48 subjects taken at random, 33 had a visual acuity of  $\frac{1}{2}$  in each eye, and four managed  $\frac{1}{4}$ . A further six registered  $\frac{1}{2}$  in one eye, and the remaining five had a visual acuity of less than  $\frac{1}{2}$  in either eye. The impairment of vision in these had resulted from trachomatous corneal lesions. In the field, however, an aboriginal leaves us far behind in perceptive powers. He recognizes objects at many times the distance at which the white man can recognize them, and his ability to recognize and follow tracks and footprints leaves us bewildered. The extraordinary performances of black-trackers would be largely discredited and classified as figments of fiction, but that they are commonly accepted in legal practice. These feats are not due to any advantage in visual acuity with which the aboriginal is often credited, but are the result of training and careful observation and of the accurate interpretation of natural phenomena so closely related to his survival.

#### Refractive Errors.

Tests for errors of refraction were performed after routine instillations of homatropine and cocaine (2%). All eyes exempt from deep or extensive superficial corneal disease were hypermetropic. The largest error discovered was three diopters, and the majority varied between 0.25 and 1.5 diopters. Hypermetropic astigmatism varying between 0.5 and 1.0 diopter was seen in about 30% of subjects. In no instance was myopia found in an eye free from corneal disease.

#### Lid Diseases.

Chalazion is not uncommon and chiefly affects young adults. The incidence approximates that in whites. Blepharitis and hordeolum, however, are rare.

#### Naso-lachrymal Duct.

Chronic dacryocystitis in association with old, active, severe trachoma is not uncommon. In several instances it had produced a diverticulum of the sac in the lower lid, extending as far out as the external canthus. In one subject the distended sac readily held 2.5 cubic centimetres of saline solution. No evidence of rupture through the skin indicating acute dacryocystitis was found in any subject.

#### Conjunctival Disease.

Pterygium is somewhat rare. In a series of 574 subjects it was present in 17, and is therefore considerably less common than in a similar number of whites residing in the Northern Territory. It never encroaches more than about two millimetres on the cornea.

Mucopurulent conjunctivitis is prevalent amongst children, and is usually associated with profuse nasal

discharge and a tendency to bronchitis. The organisms most commonly found on culture media were Koch-Weeks bacilli and pneumococci.

No attempt at cleansing the conjunctival sacs is ever made by the mother, and the discharge collects on the lashes in hard, stiff pencils.

#### The Cornea.

Variations in diameter of the cornea are similar to those in European eyes. *Arcus senilis* is not uncommon in the elderly. Owing to their outdoor life in thick high grass and bush, the natives in the northern areas occasionally present corneal abrasions.

The corneal lesions of trachoma will be dealt with under a later heading.

#### Uveal Disease.

The aborigines appear to be remarkably free from disorders of the uveal tract. No frank case of acute iritis or cyclitis was observed on external examination, nor was any evidence of chorioiditis found in the fundi of 86 subjects examined ophthalmoscopically. Iris atrophy with mydriatic-resistant pupils was evident in several lepers. Popular opinion among white people in the Northern Territory maintains that the natives are largely infected with gonorrhoea. In refutation of this common belief, it may be stated that no evidence of gonococcal eye disease was found, nor could gonococcal focal infection be suspected in the absence of uveal inflammation.

#### Ocular Manifestation of Yaws.

If it is assumed that infection by *Treponema pertenue* immunizes a people against infection by *Treponema pallidum*<sup>10</sup>, then syphilis is not likely to be encountered in the aborigines, and it is probable that the following cases may be listed as presenting unusual manifestations of yaws.

CASE I.—Alden was aged about thirty years; he belonged to the Djappada tribe, in the Wyndham area. He had optic atrophy and central retinitis. He was admitted to hospital with right-sided hemiplegia of recent origin. The blood yielded both the Kline and the Wassermann reactions ("++"). An accompanying impairment of visual acuity (right eye,  $\frac{1}{16}$ ; left eye  $\frac{1}{64}$ ), also of recent origin, was due to optic atrophy, and in the left eye it was also partly due to central retinitis. The cerebro-spinal fluid was under normal pressure, contained globulin and ten cells per cubic millimetre, and yielded a paretic type of gold curve and a "doubtful positive" reaction to the Wassermann test. The patient intimated that his lubra and two children were well. Rapid reduction in the paralysis and some improvement in the visual acuity followed initial treatment by potassium iodide and mercury, later supplemented by "Novarsenobillon".

CASE II.—Topsy, aged about twenty years, belonged to the Rimburrunga tribe in lower Arnhem Land. She had bilateral interstitial keratitis and keratoconus in the left eye. This lubra had uniform grey opacities in the deeper layers of the cornea associated with deep blood vessels. In the right eye the grey area occupied approximately the upper half, the lower margin being convex downwards. The lesion in the left cornea resembled that in the right, but extended further down and occupied all but a narrow zone about 1.5 millimetres wide inferiorly. A considerable degree of keratoconus was superimposed in the left eye. The blood reacted to the Kline test ("++").

CASE III.—Blind Maggie, aged about twenty-five years, belonged to the Nowla tribe in the Victoria River area. She had optic atrophy. She stated that she had been blind "long time" and that the blindness had "come slow". Her pupils were 5.0 millimetres in diameter and inactive. She was completely blind without perception of light. The fundi presented clearly defined, greyish-white disks, with no alteration in their level, the blood vessels appeared to be normal and the fundus colour was a little paler than is usual in aborigines. These conditions were combined with ataxia, disturbance of balance, flaccid arms and legs, absent deep reflexes and a positive ("+++") reaction of the blood to the Kline test.

CASE IV.—An infant, aged about two months, belonged to the Ngullican tribe in the Roper River area. He had interstitial keratitis. The blood of both parents and the infant reacted to the Kline test. Both corneas of the child were opaque and of a generalized pale-grey colour, amongst

which numerous rounded, yellowish-grey plaques were distributed. The subsequent history is not known, as the family disappeared silently and suddenly into the bush soon after treatment was initiated.

Cases III and IV have been described by Binns<sup>(6)</sup>.

#### Trachoma.

As may be expected in a people living in close personal contact with each other, without the slightest notion of personal cleanliness and hygiene, trachoma has a remarkably high incidence. Of a total of 574 subjects, 520 (91%) presented evidence of trachoma in one of its stages.

The most remarkable feature of the disease in the Northern Territory is the extraordinary influence that climate bears on its severity. In the southern areas of the Northern Territory, rarely free from wind and dust, the disease is severe. In the northern areas, comparatively free from wind and dust, the disease is mild and complications are rare. The incidence rate is practically identical in the two areas thus subdivided climatologically.

The bush fly *Musca vetustissima* is so prevalent in the interior dry areas that outdoor life is a most trying experience. The flies have a predilection for one's eyes and are most persistent in their endeavours, and it becomes necessary to wipe them from one's lids times without number. The aboriginal placidly ignores flies, and one usually finds a group clustered about his eyelids. In the northern areas these flies are practically absent—a few are seen in the winter months, but never in large numbers.

The incidence rate of trachoma is practically identical in the fly-ridden and the fly-free areas, and one may therefore conclude that flies play a minor role, if any, in the dissemination of the disease.

The chief vehicle of transference of the organism of trachoma in the aboriginal is almost certainly the human finger. It is a common experience to observe a lubra wiping the secretion from her eyes with her fingers, and a moment later repeating the manipulation on her child's eyes, wiping any excess on to some part of her body or thighs.

**Corneal Conditions in Trachoma.** In both severe and mild cases of trachoma in the aborigines, one frequently finds a crescent-shaped infiltration or degeneration of the cornea contiguous with the sclerotic. The lesions appear during the stage of healing and are apparently permanent. They have a sharply defined border, are greyish-white to olive-brown in colour, and may contain small collections of dark brown pigment and both superficial and deep blood vessels. Their length varies from 7.0 to 12.0 millimetres, they taper at each end, and the diameter in the middle varies from 1.0 to 3.5 millimetres. They are most usually situated on the upper border of the cornea, but may occur on the upper and lower borders, or occupy the whole circumference. Being contiguous with the sclerotic and opaque, they distort the outline of the cornea to superficial examination, so that if they are present above and below, the cornea appears to be horizontally oval. Irregular mantles of pannus may coexist and extend beyond the margins of these degenerated areas. The lesions were found in 101 (22%) of 463 sufferers from trachoma. In 11 eyes the crescents contained Herbert's pits—clear, circular areas varying from one to two millimetres in diameter, most of them discrete but others merging with neighbouring pits. They varied in number from a solitary pit to as many as nine, and if they were multiple they described an arc in the area of crescentic degeneration. In two subjects a narrow pigmented line described an arc in the crescentic area.

**Severe Trachoma.** Severe trachoma is found in the dry, dusty, windy interior country. It conforms to the classical description of the disease, in that it begins in early childhood and terminates with the grave, producing more suffering than any other disease, and is accompanied by progressive impairment of vision and not infrequently blindness. Of a series of 140 consecutive subjects examined, 11 were blind in both eyes, 13 were blind in one eye, 41 presented corneal opacities which considerably

impaired the visual acuity, and 31 had pronounced entropion which in 25 instances had resulted in trichiasis. *Phthisis bulbi* was found in five eyes. In nine cases there was an associated chronic dacryocystitis with considerable enlargement of the lacrimal sac, and symblepharon was present in two subjects. Pannus, visible to the naked eye, was present in all severe active cases of trachoma, and in two cases the grey mantle extended over the whole cornea. History taking, apart from its amusement value to a bystanding colleague, is usually valueless. An aboriginal cannot think in abstract terms, and time is of no significance to him. When he is questioned, his averted face remains expressionless until he discovers whether one wishes him to reply in the affirmative or negative, and then his desire to please outweighs his respect (if any) for scientific investigation.

The following will serve as illustrative cases of severe trachoma.

Judy, aged about fifty-five years, belonged to the Wadamar tribe. The conjunctivae of her lids were red and considerably swollen and speckled with areas of pigmentation. Scarring in irregular patches coexisted with small collections of follicles. Both lacrimal sacs contained a large quantity of foul-smelling pus, which welled from the inferior puncta on pressure over the enlarged sacs. Her right eye was shrunken and the edge of its calcified lens projected some two millimetres from an anterior perforation of the cornea. (The lens was readily removed with a blunt curette.) Her left eye presented early senile cataract and much pannus.

January, aged about twenty years, belonged to the Ngeliman tribe. A series of well-defined scars on his throat indicated an ineffectual attempt at suicide. Both his eyes presented severe, active trachoma with many large follicles on greatly swollen, hyperplastic and reddened conjunctiva. Grey mantles of pannus with numerous blood vessels extended downwards to cover half of his cornea. In the upper area occupied by pannus in each eye was a greyish-white crescent, tapering at both ends, about 7.0 millimetres long and 3.5 millimetres wide in its middle. The crescent in the left eye contained a solitary Herbert's pit.

Joe, aged about seventy years, belonged to the Billi-ngarra tribe. His trachoma was characterized by a few follicles, some scarring and much swelling and redness of the conjunctiva of the lids. He had entropion and trichiasis. His left eye was quite blind from a dense white opacity of the whole of the cornea. His right cornea presented a dense central scar containing a horizontal pigmented line. The visual acuity in this eye was poor. An optical iridectomy would help Joe.

Charlie, aged about seventy-five years, belonged to the Ngeliman tribe. He was completely blind from trachoma. Both cornea presented dense opacities undergoing calcareous degeneration, and blood vessels. His lids were distorted, with the production of trichiasis, and follicles, areas of epithelial hyperplasia partly pigmented, and irregular scars on his tarsal conjunctivae were present.

Charlie was conducted by Joe (mentioned above) in the manner invariably used by natives when leading their blind. Joe's visual acuity was just sufficient for him to avoid large obstacles and pitfalls, and he led Charlie at the end of a stout cudgel some five feet long. They proceeded in single file, one at each end of the stick held loosely and horizontally by their sides.

Mary Anne, aged about forty-five years, belonged to the Ngongalli tribe. Her trachoma had produced entropion, distichiasis and trichiasis, and isolated scars on the cornea. She was the only native examined who practised epilation for the relief of trichiasis. She did this by pulling the lid away from the eyeball, and then removing the offending lashes between the index finger and thumb of the same hand. Although performed without the aid of a mirror or an instrument, the procedure was highly successful, in that no lashes were rubbing on her cornea, although many were projecting about half a millimetre from the lid.

Nellie, aged about sixty years, belonged to the Djamindjang tribe. She was blind in both eyes from trachoma. The right eye was affected by *phthisis bulbi* and the left by keratactasia involving the whole of a densely opaque cornea. Trichiasis involved both upper and lower lids, and had produced spastic entropion of the lower lids.

**Mild Trachoma.** As has been previously mentioned, mild trachoma has a climatological distribution, and in general belongs to the comparatively wind and dust free

areas north of the Roper River. The incidence rate is practically identical with that of severe trachoma—about 90% of all persons. None of them complained even of discomfort, although this may be ascribed to the natural stoicism of the natives. In no case was photophobia, excessive lachrymation or active corneal ulceration present. Slight ptosis was observed in a fair proportion of subjects with pannus and follicles. Pannus was present in all with follicles and epithelial hyperplasia. Most of the children had early trachoma manifested by pannus, red swollen conjunctiva of the lids containing follicles, and a little hyperplasia. Fine cicatrices were found in those who had attained the age of ten or twelve years, and adults presented little evidence of preexisting trachoma apart from fine scarring of the tarsal conjunctiva, and in a large proportion of cases the areas of crescentic degeneration previously described.

The following will serve as illustrative cases.

Biblingi, aged about thirty years, belonged to the Ngandi tribe. Fine scars were irregularly distributed over the tarsal conjunctiva of both eyes. Pannus could not be seen with the naked eye, but with a  $\times 10$  loupe small blood vessel loops could be followed on to the corneal epithelium. No other abnormality was detected about his eyes.

Cobiaryack, aged about twelve years, belonged to the Nungabuya tribe. He presented slight ptosis, and a few small follicles were present in a slightly reddened area over the tarsal conjunctiva of each eye. Small areas of scar tissue were distributed irregularly. A crescentic grey area of corneal degeneration was present on the upper border of each cornea; each was about 7.0 millimetres in length and 2.5 millimetres wide in the centre, and tapered at the ends.

Ironstone, aged about thirty years, belonged to the Rimbura tribe. Faint scarring, which produced a pale bluish discoloration of the tarsal conjunctiva in each eye, and a series of greyish-white crescents of degeneration in the peripheral area of the cornea, were the only remaining evidence of previous trachoma.

Paddy, aged about twenty-five years, belonged to the Melville Island tribe. His tarsal conjunctiva had become scarred, with the production of an ivory-white, smooth, glistening surface. There was no distortion of the lids or entropion. His cornea presented a few fine invading blood-vessel loops above, and in the left eye he had an olive-green crescent of corneal degeneration about nine millimetres long and two millimetres wide in its middle.

Don, aged about twenty years, belonged to the Millingimbi tribe. His lashes were unusually long. The conjunctiva of his upper lids was reddened and contained small irregular areas of cicatrization. The cornea appeared clear.

#### Treatment of the Diseases of the Aborigines.

As has previously been intimated, the natives of the Northern Territory are readily divisible into three sociological groups: (a) the supervised camp group, (b) those in regular employment, and (c) the nomadic group.

The inhabitants of supervised camps, largely treated with contempt by their supervisors, with no hope of ever being accepted in the white man's society, and with no pride in their ancestry, are rapidly diminishing in numbers. Their medical problem is a self-terminating one—they are doomed to early extinction. Medical care in the meantime should be, and actually is, based on that provided for white communities including treatment in hospitals. A similar attitude is adopted to those employed on cattle stations in the vicinity of towns.

As for the nomadic group, and those employed on outlying cattle stations, we cannot approach these too cautiously. On the outlying cattle stations a semblance of the black man's primitive patriarchal family life is still maintained, and for that reason these natives should be treated in the same manner as the nomadic people. It is for the latter, however—the nomads—that a special plea is made. Previous experience shows us clearly that there is no surer way of exterminating them, even if we cure them individually of their physical ills, than by collecting them in the vicinity of white people. They cannot be separated from their highly adapted primitive existence—from the only world they know—and survive. There is no alternative. This factor must form the basis

of our approach to them, or better by far that we leave them alone. Therefore as a general principle treatment in hospital cannot be countenanced. These remarks do not apply to the comparatively small numbers of lepers and those suffering from tuberculosis, who must be segregated.

If the nomadic people in Arnhem Land, estimated at some 3,000 individuals, were left completely to themselves; if we strictly excluded not only pearlers and beachcombers, who under the pretext of seeking water land on its shores to satisfy their lust, and the "poor whites" roaming in the area, but also all manner of teachers and missionaries, often well-intentioned but ill-informed; if these were excluded, there is no reason why the aborigines should not survive through hundreds of years. They have done so through countless forgotten ages, and it is only when we thrust ourselves upon them with our "civilization" that they leave their virtuous primitive life, adopt our vices, and end miserably.

All missionaries in the Northern Territory cannot be included in this generalization. A few intelligent men do exist—teachers in the true sense, who do not allow religious zeal to subjugate their respect for aboriginal customs and habits. Fully cognizant of the havoc and destruction created by fellow-missionaries, these few stand preeminent in their helpful, unselfish and commonsense attitude. They rate physical welfare as at least equal in importance with spiritual welfare, and realize that the uncontaminated black man is more virtuous than the white.

The natives in Arnhem Land live in barren, inhospitable country, which fortunately for them has not been inviting enough for white men to occupy. How long this state of affairs will continue is unpredictable. Even now certain ignorant and misguided people maintain that lack of development of Arnhem Land is one of the reasons why the Northern Territory has failed economically in the past. They have formulated the most extraordinary and fantastic schemes for its so-called development. Let us call a halt to these dreamers and at the same time preserve the aboriginal in his last stronghold. Arnhem Land cannot be utilized economically by the white man, so why destroy the black man in it?

The problem confronting us, therefore, is primarily, the prevention of their racial extinction, and secondarily, the treatment of their diseases. The former is dependent on wise and humane administration; the latter presents no insuperable difficulties. The medical care of the aborigines who live the primitive food-gathering, patriarchal family existence could be maintained by mobile medical units. A mobile medical unit would consist of a medical officer, with special training in the treatment of trachoma and aboriginal diseases, a guide-interpreter, with special knowledge of native customs and habits, for each district, and an orderly. The unit would have at its disposal two motor vehicles, one of which would be fitted out with the necessary medical, surgical and laboratory equipment for the diagnosis and treatment of the diseases commonly found. It would visit suitable areas in the reserves in rotation. The unit could control yaws, malaria, trachoma and probably hookworm, determine the diagnosis of leprosy and tuberculosis, act in an advisory capacity on matters of personal hygiene and cleanliness in fixed native encampments, and indicate the mode of procedure for treatment of disease for the periods intervening between visits. This approach would not "detritalize" the aboriginal or interfere with his mode of life, and the medical officers would receive the confidence of the natives, who would readily submit to treatment. The white custodians of aborigines would also welcome it, and their active cooperation would be assured.

Treatment in hospitals for natives other than those who had been "detrialized" would, as has been previously mentioned, spell death and destruction to them. Quite apart from this aspect, there are other factors that would render such a plan infeasible and ineffective. The large number of sufferers from yaws and trachoma alone could not be coped with by any transport unit over the trackless areas involved, nor would air transport be adequate; and



the aborigines, with their innate fear of any other than their tribal grounds, even if successfully collected, would quickly take to the bush and disappear.

A modification of the approach that a mobile medical unit would employ, and more suited to the difficult terrain and vast distances, was in force prior to the outbreak of the war against Japan, through the medium of the Aerial Medical Service. This service visited the cattle, mission and police stations at regular intervals. The large number of sufferers from the complications of trachoma alone indicates that the service had insufficient medical officers at its disposal. Its activities will be enlarged in the post-war period, more medical officers and more aircraft will be engaged, and it is anticipated that this service will be able to cope with the large number of sick natives in the various stations under its supervision.

#### Summary.

1. The sociological and psychological background of the aborigines in the Northern Territory is briefly outlined.
2. Their common diseases are enumerated.
3. A survey of their eye conditions and diseases is presented.
4. The prevalence of trachoma is stressed.
5. The climatological influence on the severity of trachoma is pointed out.
6. The frequent occurrence of a crescentic-shaped degeneration of the cornea in trachoma is mentioned, and the macroscopic appearance is described.
7. A note on the mode of transfer of the infecting organism of trachoma is tendered.
8. The theory that flies act as vectors of trachoma is discredited.
9. Suggestions concerning a medical officer's approach to the aborigines are outlined.
10. The formation of mobile medical units in the Northern Territory is recommended.
11. A plea that Arnhem Land be maintained as an inviolate aboriginal reserve is added.

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### TRAUMATIC ARTERIO-VEIN ANEURYSM OF THE FEMORAL BLOOD VESSELS.

By GEORGE C. V. THOMPSON, F.R.C.S. (Edinburgh),  
Surgical Registrar of a Royal Australian Air Force Hospital.

TRAUMATIC arterio-venous communications most frequently result from wounds of an artery and an accompanying vein by a penetrating projectile of the nature of a rifle bullet or a bomb fragment, or as a result of stab

wounds. Thus it is to be expected that larger numbers of arterio-venous aneurysms will occur in war-time and that opportunities will be presented for the study of their clinical features.

The common sites for arterio-venous communications of traumatic origin are in exposed situations in which an artery and vein are in contact over long distances. It is not surprising that the most common vessels which sustain injuries resulting in the development of arterio-venous aneurysms are the femoral, axillary, brachial, popliteal, carotid and subclavian vessels, the frequency being somewhat in that order. The most commonly encountered arterio-venous aneurysms are those of the femoral vessels.

The type of communication between the artery and the vein depends upon the degree of wounding of the vessels, the amount of perivascular hæmatoma formation and the relative positions of the arterial and venous wounds. A small foreign body passing between an artery and its accompanying vein may cause only a small puncture of both artery and vein, with a minimal extravasation of blood into the tissues, because the proximity of the openings allows the blood extravasated from the artery to follow a pathway of little resistance through the venous puncture rather than to dissect tissue planes. A fistula is thus established without the formation of an intervening aneurysmal sac; either this may be a direct communication between artery and vein or an arterio-venous fistula united by a small channel may result. Such communications constitute an aneurysmal varix. If the vascular damage is greater than this, or if the wounding of the vessels is such that the openings of the artery and vein are at the same level although not contiguous, as may happen in tangential wounds of blood vessels, blood is extruded into the tissues and forms a hæmatoma, which finally communicates with the venous opening. The organization of the track thus formed gives rise to an arterio-venous communication in which an aneurysmal sac is an integral part. This constitutes an arterio-venous aneurysm.

#### Reports of Cases.

In a recent case it was most instructive to watch the formation of an arterio-venous aneurysm during the first few days after injury to the femoral vessels. Such a patient (Case I) was recently examined after he had sustained a gunshot wound of the femoral region; a large thigh hæmatoma developed, which was rapidly reduced in size, and at the same time the classical signs of an arterio-venous communication became evident. The clinical condition and progress of this particular patient will be briefly quoted.

CASE I.—On November 9, 1944, B.N.M., an officer of the Royal Australian Air Force, was injured by a rifle bullet which penetrated his left thigh in the region of the apex of the femoral triangle of Scarpa. He was examined almost immediately; at this time his pulse rate was 60 per minute and his blood pressure was 120 millimetres of mercury, systolic, and 70 millimetres, diastolic. Three hours later, on his admission to hospital, examination revealed that the entry wound was a quarter of an inch in diameter and was situated three and a half inches below Poupart's ligament, just lateral to the femoral artery. A slightly larger exit wound was situated in the gluteal region, two inches from the mid-line of the body. The pulsations of the femoral and popliteal arteries were readily palpable, but pulsations of the posterior tibial and *dorsalis pedis* arteries were palpable only with difficulty. There was a large hæmatoma over the thigh, which rapidly subsided during the next twenty-four hours.

Two days after the accident a pulsation and thrill were noticed for the first time over the femoral artery. These features extended as far as Poupart's ligament and were associated with an audible bruit; but no obvious localized pulsating mass was recognizable as a distinct entity, apart from the generalized effusion of blood into the thigh muscles and tissues. Neither at this nor at any subsequent time did venous engorgement or oedema of the leg appear.

During the next few days the thrill, pulsation and bruit became more localized over the femoral region, and the thrill now actually extended proximal to Poupart's ligament. Proximal compression of the artery by digital pressure over its course at Poupart's ligament controlled the thrill, but unfortunately no record of the effect on pulse rate or blood

pressure was kept. No undue general symptoms or signs of cardiac involvement were noted. About five weeks after injury some deficiency of circulation in the foot occurred, with transient colour changes.

On October 31 exploration of the area was carried out under general anaesthesia, and a communication of the aneurysmal type was found between the femoral artery and vein immediately distal to the origin of the *profunda femoris* artery. Ligation of the artery and vein proximal and distal to the site of communication was carried out, followed by excision of the aneurysm. After operation the foot became cold, and cyanosis of the toes and forefoot was pronounced. This condition lasted for a week, at the end of which time the foot became warmer and pulsations reappeared in the posterior tibial artery. Within a month of operation this officer had begun walking and after another month's convalescence he could play sport and walk moderate distances without undue discomfort. Four months after injury a medical board considered that he "had recovered all normal usage of the leg and was fit for duties in the capacity of a pilot".

The arterio-venous fistula having been established, there gradually appear changes in the limb circulation, in the calibre of the vessels, and in the thickness of their walls, and especially in the lower extremity, varicosity of the superficial veins occurs. The pathological changes in the vessels and in the blood flow have been described by Horsley and Bigger.<sup>(1)</sup> There is considerable difference of blood pressure between artery and vein, resulting in rapid flow through the fistula and very little prospect of spontaneous cure by clotting. The ease of blood flow through the fistula allows a proportion of the blood in the limb to be returned to the heart without taking part in the limb nutrition, and eventually may cause cardiac enlargement. Changes occur in the artery, which becomes smaller distal to the fistula, owing to the reduced blood flow, and dilated proximal to the fistula, so that it is able to convey the blood needed to nourish the limb and to accommodate the extra blood short-circuited back to the heart. The veins become dilated distally as far as the first valve, and proximally as far as the *vena cava* or even the heart. If the venous valves become incompetent, varicosity of the veins ensues, the nutrition of the limb suffers, and ulceration or eczema may supervene. As a result of their dilatation the veins become thickened, so that it is difficult from examination of their wall at operation to distinguish artery from vein. These features are more evident in long-standing cases. This was recently seen in the case of a patient who had an arterio-venous aneurysm of the femoral vessels of three years' duration. The clinical history of this patient (Case II) is also briefly recorded.

CASE II.—On July 22, 1942, W.G.M., a Royal Australian Air Force corporal, was accidentally injured by a 0.22 rifle bullet, which entered the medial aspect of his left thigh and was recovered from the region of his left anterior superior iliac spine at operation under local anaesthesia on the same day. At this time he had a certain amount of extravasation of blood in the medial aspect of his thigh, and during convalescence a swelling was noted in the groin, which had an "emphysematous" sensation to palpation. No record was made of any damage to the main blood vessels, nor was aneurysm suggested, although it appears probable that early features were making themselves evident at this stage. The patient did not report for medical examination for two years, at which time he fainted on duty. The medical records state that examination revealed no abnormality except for varicose veins in his left leg.

On April 25, 1945, the patient reported at the unit sick parade on account of swelling of his left ankle and dilated veins in his left leg. He said that the veins of the leg had gradually become more prominent since the date of his accident and had been accompanied by the slow development of oedema. Clinical examination revealed dilatation of the superficial veins below the knee, with considerable tortuosity accompanied by "pitting" oedema and a small ulceration surrounded by low-grade cellulitis at an area of recent bruising. In the upper half of the thigh a thrill and bruit were present, localized over the femoral vessels, but no aneurysm could be palpated. The thrill and bruit could readily be followed to a point three inches proximal to Poupart's ligament. The pulse rate was 80 per minute; the systolic blood pressure was 170 millimetres of mercury and the diastolic pressure 70 millimetres. The pulse was of the

typical "water-hammer" or Corrigan type. The apex beat of the heart was displaced laterally, being palpable five inches from the mid-line of the sternum. Control of the blood flow through the arterio-venous communication by pressure over the femoral artery resulted in a fall of pulse rate to 70 per minute, and investigation of the blood pressure revealed a less pronounced pulse pressure; the systolic blood pressure was unchanged, but the diastolic pressure rose to 110 millimetres of mercury. An X-ray examination of the heart showed slight enlargement in all cardiac diameters; this confirmed the findings on clinical examination, as well as revealing engorged pulmonary blood vessel markings throughout the lung fields.

On June 7 operation on the femoral arterio-venous aneurysm was performed by a consultant surgeon. After control of the vessels, the aneurysmal communication between the femoral vessels was found to be just distal to the origin of the *profunda femoris* artery. Ligation of the femoral artery and vein proximal and distal to the aneurysmal area was followed by excision of the sac after several small communicating vessels had been ligated and divided. A small blood transfusion was given, as no evidence of cardiac embarrassment had occurred as a result of ligation. Immediately after operation the pulse rate was 76 per minute, and the systolic blood pressure was 130 millimetres of mercury and the diastolic pressure 84 millimetres.

Since operation little variation has occurred in these figures. There were no circulatory changes in the foot after operation, the *dorsalis pedis* and posterior tibial arteries being palpable at all times. The heart size rapidly decreased, and one week after operation the apex beat was four and a quarter inches from the mid-line. One month after operation the heart was clinically normal, the apex beat being in the normal situation. On July 10 X-ray examination of the chest revealed a decrease in the size of the cardiac shadow compared with the film taken prior to operation, and considerable reduction in the congestive changes in the lung fields. At this time the patient was considered fit for discharge from hospital to have a short convalescence prior to return to his normal duties.

#### Discussion.

It will be noted that the clinical signs and symptoms of a femoral arterio-venous aneurysm, as exemplified by the two cases quoted, differ according to the length of time that has elapsed since the fistula was established. An important feature to remember is that the signs of an arterio-venous aneurysm may appear immediately after the accident, or they may not become evident until after the lapse of some days or weeks. In the first case quoted the signs did not become manifest for a day or so. This may be explained by the fact that absorption of the perivascular haematoma allows signs of the fistula to be found or that the channels become more patent as swelling subsides. To the signs of the local condition are added general signs and symptoms in long-standing cases or in cases in which the fistulous openings are very large. At the same time nutritional changes in the limb may be evident.

When a wound has occurred in the region of the femoral vessels, a careful study of the exit and entry sites will often lead one to suspect injury to those vessels. In all such cases a careful examination should be made at that time, and on several subsequent occasions, to exclude vascular damage and the development of an arterio-venous connexion. The formation of a large haematoma in the soft tissues does not necessarily occur in those instances in which a contiguous artery and vein are injured. The venous opening permits rapid return to the circulation of extravasated arterial blood, and so tissue distension is prevented from occurring. According to the nature of the fistulous communication, a swelling may or may not be palpable. If the fistula communicates through a large sac, a swelling may be palpable. Such a swelling, if present, is usually pulsatile; but in the majority of femoral arterio-venous aneurysms the sac is too small to be detected on clinical examination.

The two most characteristic features of an arterio-venous aneurysm are palpable thrill and an accompanying loud characteristic bruit, which is probably most aptly described as of a "machinery" type. The thrill is pronounced over a considerable distance along the course of the vessels

concerned in the fistulous communication. The nature of the bruit is such that it is continuous throughout the whole cardiac cycle but is accentuated in systole. In the cases encountered the prominent feature noted was that the thrill had its maximum intensity a considerable distance proximal to the site of the vascular injury, and although the femoral injury was below the origin of the *profunda femoris* artery, the site of maximum thrill and pulsation was proximal to Poupart's ligament along the course of the external iliac vessels. It appeared as if the most obvious thrill was on the venous efferent limb from the fistulous opening. The distal transmission of the thrill was less pronounced than its proximal projection. The vascular bruit was heard most readily over the vessels and was maximal over the area of greatest thrill and at the fistulous site. The bruit had extensive transmission in both directions, and could be heard not only over the feet, but also along the vessels proximally for long distances. The thrill and bruit are continuous with systolic accentuation, but both can be abolished by compression of the femoral artery proximal to the site of the arterio-venous aneurysm.

At the same time, it will be noticed that as a result of the compression there is a reduction in pulse rate, a lowering of the systolic blood pressure (often after a rise for a couple of beats, in experimental studies), or a rise of the diastolic blood pressure. This has been designated as Branham's sign; but Holman<sup>(2)</sup> credits Nicholadoni with observing as early as 1875 the slowing of the pulse rate on arterial compression proximal to the vascular communication.

Other local features are signs of venous dilatation and back pressure in the legs, with large dilated varicose veins, oedema of the legs and trophic tissue changes, giving rise to eczema and ulceration. It is rare for pulsation to be noticed in the veins of the limb distal to the fistula. The oedema of the legs rapidly disappears when the part is elevated.

The deficient circulation of the leg accompanying some arterio-venous aneurysms gives rise to symptoms of fatigue after exercise, in addition to oedema and to trophic changes. Actual gangrene or ischaemia are, however, rare sequelae.

In long-standing femoral arterio-venous aneurysms, as in other peripheral aneurysms of long duration, and provided that the fistula is sufficiently large, there develop various signs and symptoms of cardiac embarrassment. Symptoms such as dyspnoea, tachycardia on exertion, faintness and a sense of cardiac discomfort are complained of, and ultimately, the condition progresses until signs of cardiac enlargement appear or even death may ensue. In occasional cases cardiac failure rapidly supervenes, as was described by Mason, Graham and Bush<sup>(3)</sup> and quoted by H. Bailey.<sup>(4)</sup> The rapidity of the return of the heart to normal size and of the pulse pressure to normal are striking cardio-vascular features after operation for closure of the fistula. The cardio-vascular changes occurring after an arterio-venous fistula have been tabulated by Tarnower, Latlin and Adie.<sup>(5)</sup> In brief, the effects are: (i) acceleration of the pulse rate; (ii) elevation of the systolic blood pressure and fall of the diastolic pressure; this feature gives rise to the water-hammer pulse, capillary pulsation and exaggerated pulse pressure; (iii) increased cardiac output with decreased stroke output; (iv) engorged pulmonary vessels; (v) increased circulating blood volume; (vi) cardiac enlargement; (vii) changes in the electrocardiographic tracings; (viii) increased venous pressure and circulation time, when cardiac decompensation occurs.

The circulatory effects are dependent upon the size of the fistula, the size of the blood vessels involved, the distance of the fistula from the heart and the volume and force within the artery which is short-circuited, as well as upon the age of the patient and the presence or absence of preexisting cardiac disease.

A careful consideration of the signs and symptoms makes the diagnosis of arterio-venous aneurysm of the femoral or other peripheral vessels moderately certain in nearly all cases. The differential diagnosis from a simple

aneurysm, however, is extremely important from the point of view of treatment. Ligation of the artery is all that is required for the cure of a simple aneurysm; but this not only fails to relieve the symptoms or produce a cure of an arterio-venous aneurysm, but may actually precipitate gangrene of the limb. The main difference between the two conditions is, firstly, that the arterio-venous aneurysm has a continuous thrill and bruit, with systolic intensification, while an aneurysm shows these features in systole only; and, secondly, digital compression of the artery proximally slows the pulse rate and affects the blood pressure in the presence of an arterio-venous fistula, but not in the case of a simple aneurysm.

#### Treatment.

The problem of treatment of arterio-venous aneurysms involves a discussion of the nature of any operative procedure and of the time at which operation should be undertaken. It is generally agreed that, as only a small number of arterio-venous fistulae close spontaneously, operation is indicated, but that, except in a few cases in which early repair may be attempted or in which cardiac failure is developing, operative procedures should be deferred until an efficient circulation has been established by the collateral blood vessels of the limb.

Holman,<sup>(6)</sup> who has extensively studied arterio-venous fistulae, discusses the treatment of these conditions according to whether the fistula is recent or of long standing. In a case in which an injury to a large artery is suspected, bed rest is indicated. If an enlarging hematoma of the limb threatens the blood supply of the extremity, immediate operation is indicated. The procedure adopted is the temporary control of the affected vessels and evacuation of the hematoma; in the absence of infection the vein is ligated, and after the edges of the arterial rent have been trimmed, suture of the artery is the ideal procedure. It is found that this is not possible in many cases, and ligation of the artery has to be carried out. The collateral circulation is encouraged by blood transfusion, and in some cases sympathectomy has been recommended. The use of blood transfusion needs careful consideration, however, since closure of the fistula, in any but the most recent cases, increases the circulating blood volume and causes further cardiac embarrassment.

If diagnosis is delayed and primary treatment has not been adopted, operation is postponed until an efficient collateral circulation has been established. This period of delay should be six weeks at least, and preferably about three or four months. At the end of this time, not only has the circulation had time to establish an adequate alternative route, but the local trauma has subsided, the vessels have healed, and dissection is less difficult than in the indurated tissues. The development of progressive cardiac symptoms or any local complication may necessitate operative interference at any time. In the event of cardiac insufficiency, bed rest and frequent digital compression of the fistula are recommended before operation. Adequate post-operative rest is also indicated in these cases, to allow the heart to compensate for the increased diastolic pressure which results from the closure of the fistula, and which in some cases may cause some further cardiac embarrassment, requiring venesection for its relief. The normal effect of closing the fistula, however, is to open up the capillaries of the collateral circulation in a manner similar to that observed in limbs after ligation of a main artery when a blood transfusion is given to the patient. In this condition the closure of the fistula makes available the blood previously short-circuited through the fistula for use in the general circulation.

The operation performed on these arterio-venous fistulae of the femoral vessels is usually proximal and distal ligation of the vein and artery involved in the anastomosis, together with all the branches that may intervene between the points of ligation. The further procedures adopted depend on the circumstances, either excision of the sac or its obliteration being carried out. These procedures can be accomplished only with adequate exposure and complete control of the main vessels above and below the field of operation. In the case of the femoral vessels this involves



control of the external iliac vessels and of the lower parts of the femoral vessels as early stages of the operation. The vessels can be controlled by special clamps or by small pieces of rubber tubing encircling the vessels and having a cord loosely tied in readiness should control become necessary. It must be emphasized that proximal ligation of the artery alone is inadequate to cure the condition and is almost certain to precipitate gangrene of the leg.

In special circumstances it may be possible to carry out a more surgically sound procedure, aiming at reconstruction of the arterial lumen, by such procedures as those of Matas and Bickham, which have been described by H. Bailey.<sup>(4)</sup> The vein of the arterio-venous aneurysm or aneurysmal varix is freely opened, after control of the vessels, and the fistula is closed by sutures inserted from within the lumen of the vein. The aneurysmal sac and segment of the vein are then excised, no attempt being made at reconstituting the venous lumen in any circumstances. The ideal procedure is not readily applicable; it needs special technique and atraumatic needles threaded with fine silk impregnated with paraffin, and precautions must be adopted to prevent vascular clotting by the use of sodium citrate solution locally or of heparin. If this procedure is successful, the limb receives its blood supply through the reconstructed artery.

After operation careful nursing is necessary to aid the limb to return to normal and to establish an efficient circulation as quickly as possible. Rogers<sup>(5)</sup> briefly summarizes the essential features by advising that attention be paid to the posture of the limb, so that its metabolism is reduced and the peripheral vessels are relaxed. The limb circulation should be aided by gravity and the limb is therefore extended in a position approximating to heart level. The leg is cooled; this lowers its metabolism and its demand on a blood supply. Rogers recommends the use of ice, but in the cases quoted, exposure of the leg to ordinary room temperatures was all that was considered necessary; warming of the legs by hot-water bottles or other heat sources was avoided. The peripheral vessels generally are relaxed by the application of warmth to the body, with the exception of the injured leg, and thus the establishment of collateral circulation to the limb is aided. There is not, however, universal agreement about the cooling of the leg, although present opinion is gradually swinging towards cooling rather than heating of the limb during the stage when the collateral circulation is being established. Reichert<sup>(6)</sup> found that, after ligation of an artery of the previously amputated and resutured limb of a laboratory animal, the limb would live if kept warm, but became gangrenous if allowed to be chilled. The experiment did not appear to be conclusive, and further clinical experience on the subject of freezing or cooling of a limb suffering from vascular damage or ligation is necessary before a conclusion can be reached.

The immediate results of treatment by quadruple ligation and excision of the fistulous area are excellent. The return of the heart to normal size and the improvement in the pulse rate and blood pressure are dramatic. The collateral circulation is usually sufficient to supply the needs of the limb, provided that operation has been delayed for an adequate time after injury. However, Bigger<sup>(7)</sup> has further investigated some of these cases in which ligations of main vessels of the extremities have been carried out for arterio-venous aneurysms. He has found that there is definite evidence that the circulation is inadequate for sustained muscular activity, and stresses the fact that this important observation has not received the attention which is its due. As an example is quoted a case in which a superficial femoral ligation was performed for arterio-venous fistula, and in which the leg easily tires and the foot is cold. In the series of cases quoted, after ligation of a main vessel for arterio-venous fistula, there was no instance of serious acute circulatory difficulty, but all the patients had evidence of persistent circulatory deficiency. Bigger concludes that, although a patient with arterio-venous fistula has little chance of gangrene after resection of a main artery, even the common femoral or popliteal, yet "such a patient appears to be as prone to

chronic circulatory difficulty as one having ligation of the corresponding vessel for arterial aneurysm". It is too early yet to assess the terminal results of the cases quoted in this paper, but a "follow-up" appears to be well worth while at a later stage.

#### Summary.

1. Two cases of femoral arterio-venous aneurysm of the superficial femoral vessels are reported, to demonstrate the development of an arterio-venous fistula, and also to show the late results in a long-standing case with classical local and cardio-vascular signs.
2. The characters of the thrill and bruit present in arterio-venous fistula are set out and their extensive conduction is described. The cardio-vascular features generally are discussed.
3. The importance of differential diagnosis from arterial simple aneurysm is stressed.
4. The advantage of delay before operative treatment in most cases is mentioned, and the operative procedures adopted are briefly reviewed.
5. The rationale of post-operative treatment is described.
6. The prognosis of femoral arterio-venous aneurysm treated by quadruple ligation and excision is good in respect of immediate results, but signs of chronic circulatory inadequacy are apt to develop, limiting return to full activity in some cases.

#### Acknowledgement.

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#### PUTRID LUNG ABCESS.

By C. J. OFFICER BROWN,  
Melbourne.

PUTRID lung abscess is a serious and by no means infrequent complication of surgical operations and parturition. Since 1939 I have operated on 41 patients for lung abscesses, 21 of which followed operation or parturition (Table I).

The common factor in all these 21 cases was general anaesthesia; in most cases the anaesthesia was "troublesome", or post-operative vomiting occurred. Some patients had recovered too soon from anaesthesia in a dental operation, and anaesthesia was reintroduced when the patient had his mouth full of blood and saliva. In one case teeth and tonsils, and in another tonsils and antra, were dealt with at the same operation. In yet another case, although the patient was not seen to vomit, some dried vomitus was noticed on the pillow. Post-operative lung abscesses result from the inhalation of blood, pus or debris, and it

can be shown by bronchoscopy that some blood always enters the trachea during any operation on the nose or mouth unless special measures are taken to prevent it. Even in a conscious patient the laryngeal reflex is not the complete protection it is often assumed to be. Lipiodol introduced into the pharynx of a sleeping patient can be demonstrated radiologically in the lungs next morning, and heavy sedation is quite sufficient to put the laryngeal reflex off its guard.

If the patient is lying on his back, inhaled material tends to gravitate into the bronchus to the apex of a lower lobe—usually in the right lung—and if he is lying on his side it flows first into the upper lobe bronchus of the lower lung. These facts can readily be demonstrated with lipiodol under the X-ray screen. Post-operative abscesses are most common in the apices of the lower lobes and in the upper lobes.

After regional block anaesthesia inhalation may occur while the patient is "sleeping it off", and heavy sedation should be avoided in these cases.

TABLE I.

Ætiological Factor.	Number of Abscesses.
Dental operations .. .. .	7
Parturition .. .. .	6
Abdominal operations .. .. .	5
Ear, nose and throat operations .. .. .	3
Foreign bodies .. .. .	2
Carcinoma of the lung .. .. .	1
Unknown .. .. .	1
"Pneumonia" <i>et cetera</i> .. .. .	16
Total .. .. .	41

It is recognized that some blood is aspirated into the lungs in the majority of mouth and nose operations, but in most cases this is coughed up and causes no trouble. In some cases a small bronchus becomes blocked by the inhaled material, and the corresponding segment of lung becomes atelectatic; with infection added, a localized pneumonitis develops, and this is the explanation of many cases of post-operative pneumonia. When the infecting organisms are necrotizing dental anaerobes or similar types, a putrid lung abscess results.

The segment of atelectatic lung always abuts on the visceral pleura, and infection excites an intense pleural reaction and adhesions form over the area of reaction. Since the greater part of the surface of the lung is in contact with the chest wall, in most cases these adhesions fix the site of the abscess to the chest wall. This does not happen if the abscess reaches the pleura on the diaphragmatic or mediastinal surfaces of the lung, or in a fissure. In all other cases there is an area of adhesions through which the abscess can be drained without opening the free pleural space. This area is sealed off early and the adhesions are firm within two or three weeks of the onset of the abscess. The area of fusion may be limited and is often not more than an inch or two in any direction; but with accurate localization it is usually adequate for approach to the abscess.

Cavitation always occurs in seven to ten days from the onset, and in acute abscesses the cavity is found to average about two inches in diameter, and is solitary, spherical and unilocular. It contains pus, debris and sloughs, and after a few days opens into a bronchus; this allows the exit of the foul gases which cause the putrid smell and taste, even before any pus is evacuated. As the bronchial opening enlarges, pus and sloughs may be evacuated and spontaneous cure may result.

In most cases bronchial drainage is inadequate and the process tends to become subacute. Fibrosis develops in the wall of the abscess and in the adjacent lung, local extensions occur causing multiloculation, and "spillover" into adjacent bronchi results in satellite abscesses and bronchiectasis. At this stage drainage is useless, and the only hope of cure is

by extirpation of the diseased portion of the lung. At any stage the abscess may perforate into the pleural cavity, causing a localized or generalized pyopneumothorax. Cerebral abscesses may result from blood spread, and amyloid disease may develop from long-continued suppuration. "Spillover" into other parts of the lung may cause suppurative pneumonia or other abscesses.

Acute, subacute and chronic stages shade into one another; but it is helpful to separate them arbitrarily. For practical purposes a abscess less than six weeks old is acute, from six weeks to three months it may be considered subacute, and after three months it is considered chronic.

### Symptoms.

After operation there is usually an incubation period of a few days, followed by the onset of illness with flushes, chilliness and rigors. Pain in the chest indicates the site of pleural involvement, and localized tenderness may be elicited over this area. A cough develops, and although at first it is dry and irritating and non-productive, in a short time—usually ten or twelve days from the onset—the patient begins to expectorate foul pus in increasing amounts. Some days before expectoration commences a foul odour may be noticed in the breath, and this is diagnostic of the presence of a lung abscess. Hæmoptysis frequently occurs. The maximal interval between operation and onset is probably fourteen days.

### Prophylaxis.

Dentists and surgeons are usually held responsible for the development of post-operative lung abscesses, but the real blame in most cases lies with the anaesthetist. No operation on the mouth or throat, involving general anaesthesia, should be performed unless the patient is in a well-equipped hospital. The operation should always be performed with the patient in the prone position, and when it is likely that aspiration will occur, the anaesthetic should be administered through an endotracheal tube and the pharynx should be packed or otherwise shut off. In any operation, if aspiration does occur or is suspected, the air passages should be cleared at the end of operation by tracheal suction or bronchoscopy, and in the post-operative period, if atelectasis develops, active measures should be taken to overcome it. First the patient should be given morphine, laid on the sound side and vigorously thumped and rolled about. This may start a fit of coughing with the expulsion of a plug of mucus or blood clot, which will be followed by reexpansion of the collapsed area. If it fails, tracheal suction with a catheter may be tried or bronchoscopy may be used. Bronchoscopy, although somewhat terrifying to a sick patient, is undoubtedly the best method, and should be looked on as an essential accomplishment for any specialist anaesthetist. I make it a routine measure after all operations to insist that the patient takes regular deep breaths and coughs, even if it hurts, because sputum retention is the commonest cause of post-operative chest complications.

No operation of election should be performed in the presence of dental infection, and dental inspection should be a routine measure before operation in all hospitals.

### Management.

The majority of acute abscesses require surgical drainage, just as surely as operation is required for the treatment of acute appendicitis. Both conditions may resolve spontaneously; but the decision whether to operate or not and when to operate is entirely the province of the surgeon, who should be called in as soon as a lung abscess is suspected. It is obvious that complete resolution is much more likely to occur if the infection can be controlled in the acute stage before secondary changes have developed in the surrounding lung. If drainage has to be attempted, it is much more likely to succeed in the acute unilocular stage than when the cavity is multilocular and the surrounding lung fibrotic and honeycombed. Once the condition of chronic pulmonary suppuration has been reached, although drainage may bring about some improve-

ment in selected cases in which large, poorly-drained pus-containing cavities are present, cure is rarely possible except by extirpation.

Probably about 30% of putrid abscesses resolve spontaneously, and it is reasonable to be conservative for a few weeks in cases in which abscesses are apparently draining well into a bronchus, when the course is not very acute and the cavity is only moderate in size. Penicillin should be used for these patients and will help if bronchial drainage is sufficient. Unless resolution is progressing satisfactorily, drainage should never be delayed beyond six weeks, and if symptoms recur after apparent resolution the abscess should be drained without further delay. Resolution must be assessed on the disappearance of clinical symptoms (rise in temperature, cough, sputum) and the clearing of X-ray signs. Until the X-ray findings are normal relapse is likely, and the patient should never be discharged from hospital. Good X-ray films must be taken every week during the period of observation, and if there is any evidence of deterioration extra films should be taken at once. Clinical examination is of little value, and the progress of the lesion can be followed only by radiological methods. Films should be taken in two planes, and various intensities and exposures should be used in an attempt to demonstrate a cavity, if one is not readily visible. Because cavities appear and disappear in the films in accordance with their content of pus or air, sufficient films should be taken for accurate localization on the first occasion when a cavity is demonstrated. Accurate localization is the *sine qua non* for successful drainage.

Non-operative treatment consists of "wait and see", with supportive regime, drugs and postural drainage. Bronchoscopy should generally be used once, to exclude the presence of a foreign body or a carcinoma or other obstruction in a bronchus. It is occasionally of value in improving drainage, especially in the case of abscesses in the basal parts of the lower lobes. Bronchoscopy should be carried out by the surgeon, because the information obtained helps in localizing the abscess and determining when and how to operate; it should not be repeated unless it has obviously improved drainage, or in an emergency, when a sudden flooding of the bronchial tree has occurred and aspiration is necessary to relieve respiratory distress.

Sulphonamides are useless for putrid infections. Penicillin is efficient in controlling them, provided drainage is adequate, but it is useless without effective drainage. It should be used for twenty-four hours before operation and for as long as seems necessary after operation. Penicillin prevents the sloughing of the surfaces of the wound and hastens the disappearance of the putrid odour after operation, and it seems likely that it reduces the risk of "spillover" suppurative pneumonia and possibly cerebral abscess in the immediate post-operative period, when coughing is painful and retention of secretions difficult to prevent.

With accurate localization nearly every lung abscess can be approached through the adherent area and drained in one stage. If the pleura is inadvertently opened, a two-stage operation may be necessary; but this has happened in only a few of my cases.

Drainage should be carried out at once in the case of all hyperacute abscesses and all abscesses with exceptionally large cavities, and in the case of an acute abscess that has not responded satisfactorily to a few weeks' delay. It may be tried for subacute and chronic abscesses with large, poorly-drained cavities associated with copious sputum. Often in these cases lobectomy will be needed; but the risk of the major operation may be reduced by preliminary drainage, to reduce the volume of sputum and improve the patient's condition.

Lobectomy is the only treatment for the patient who has passed into the stage of chronic pulmonary suppuration with multiple cavitation and bronchiectasis. Many of these people are reasonably well, but have persistent cough and sputum, and in my experience they have all been cured by lobectomy. Contrasted to these is a small group of patients whose infection is diffused through a lobe with multiple small cavities and much fibrosis. They are febrile

and toxæmic and losing ground, but there is no cavity that can be drained, and lobectomy seems to offer them their best chance of recovery. Lobectomy was performed on five of my patients suffering from this condition. The first, in 1940, died on the operating table from suffocation by the cheesy pus squeezed from the lobe as it was being freed. Improved methods of anaesthesia and operation that we now use would have prevented this, and recently Dr. R. H. Orton piloted an even more troublesome patient through a successful three-hour lobectomy by repeated bronchial suction and bronchoscopy during the operation. The next two patients survived the operation, but succumbed to putrid infection a few weeks later. Penicillin would probably have saved these two. The last two have done well. One is cured and the other is convalescent.

#### Results.

The results have been as follows. From 1939 to 1941, 10 patients had lung abscesses drained; two patients were cured and eight died. From 1942 onwards, 16 patients had lung abscesses drained; 11 patients were cured, one died, the condition of two was improved and they were later cured by lobectomy, one contracted tuberculosis, and the condition of one was not improved. Lobectomy for carbuncle of the lung was carried out in five cases; one patient was cured, one is convalescent and three died. Lobectomy for chronic suppuration after a lung abscess was carried out in 13 cases; all the patients were cured. Thus, of 18 patients submitted to lobectomy, three died.

In three of the cases in the 1942 and after group two separate abscesses were drained. In one case recovery followed drainage of a complicating localized pyopneumothorax, and in another recovery followed a first-stage operation in which rib resection was performed and the cavity was not found, the wound being packed and closed to allow further localization. Penicillin had been used for some days before operation without response, and its administration was continued after operation. The patient's temperature became normal, and after an initial increase, cough and sputum disappeared and he made a complete recovery without further operation.

#### Acknowledgements.

I should like to express my indebtedness to the writings of Neuhof and Touroff and their associates. From them I obtained an understanding of the pathology and management of lung abscesses, and I have had opportunity to confirm the accuracy of the principles they enunciate. At the Mount Sinai Hospital in the last sixteen years these men have operated on 172 patients suffering from acute putrid lung abscess, with four deaths.

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#### INGUINAL HERNIA AND ITS REPAIR.

By HARLEY TURNBULL,

Lieutenant-Colonel, Australian Army Medical Corps,  
Australian Imperial Force.

THE Bassini operation is standing its trial. English surgery in particular has been vehement in its condemnation, and unequivocally demands the death of the Bassini technique. The operation was first described by Bassini in 1889, and for fifty-five years it has been accepted. If it is to be condemned, the evidence on which it is sentenced must be irrefutable and irreproachable. Those who wilfully destroy must of necessity rebuild, and the new edifice must be finer and better.



The objections to the Bassini operation are based on the statistics of recurrences, and a dogma which depends on statistics must always be suspect. An article by Edwards in *The British Journal of Surgery* of October, 1943, is typical of this trend in the surgical treatment of hernia, and is an example of the ever-increasing number of articles over the last ten years damning the Bassini operation. Edwards draws attention to the alarming recurrence rate, and dogmatically states that it is due to a blind adherence to the Bassini technique. He quotes figures which were published by Max Page in 1943, and he bases his conclusions largely on them. They are the results of 142 operations performed in 1943. These figures are shown in Table I:

TABLE I.  
After Edwards.

Operation.	Number of Performances.	Recurrences.	Recurrence Rate.
Excision of sac .. ..	86	8	9.3%
Fascial repair .. ..	39	6	15.4%
Other methods:			
Bassini .. 7	17	3	17.6%
Fowler .. 6			
McArthur .. 3			
Bloodgood .. 1			

The striking fact is the low number of Bassini operations on which Edwards bases his opinion; the McArthur and Bloodgood operations are only slight variations of the Bassini operation and can be classed as a Bassini operation, so that the total is 11 operations out of 142. The Fowler operation can by no means be called a Bassini modification, so that the given numbers included in "other methods" should be 11 Bassini and six Fowler operations. The recurrences were three—a rate of 17.6%. There is no mention of the type of operation—the Bassini or the Fowler—in which the recurrences were observed. These figures are thus unfair to the Bassini technique. As they stand in the article by Edwards they are valueless, for there are three fallacies, one of which has been mentioned. Other important fallacies are as follows: (i) the operations were performed by different men, who must vary in skill, technique and judgement; (ii) much vital information is omitted—the age of the patient, his general physique, the type of hernia, the suture material, the type of anaesthesia, pulmonary complications, sepsis, the period of incapacity (that is, the length of stay in bed), the length of convalescence, and the period before hard work was resumed. Without full information the figures are unintelligible, and surgeons would be ill-advised to discard Bassini's operation on a spurious deduction from such figures.

To illustrate how treacherous and misleading figures without detail can be, the following two hypothetical cases may be put forward. The first patient has a large scrotal hernia of some years' standing; the sac is thickened, fibrous and adherent, and there is gross distortion of the anatomical planes. The second patient is a young man, whose tissues are firm and tonic; the hernia is small and a bubonocoele, the hernial ring, is small and there is no distortion of the tissues. The first patient undergoes a Bassini operation and the hernia recurs; the second has the sac excised and the hernia does not recur. Is it justifiable to state that the Bassini operation is no good and should be discarded without considering the difference in the two types of hernia and the relative difficulty of the two operations? Excision of the sac can be performed only in selected cases, and the recurrence rate should be lowest in such a group. What is to be done with the other cases? It is postulated that there are only two operations that can be performed—the Bassini operation or a fascial repair. On the quoted figures, which by no means give the true position, the recurrence rates were respectively 17% and 15%. The rate may well have been much lower for the Bassini operation alone, for with it are included six Fowler operations. Is it wise to state on these figures that fascial repair should replace the Bassini operation, as Edwards states? Edwards's final words are that early hernia should be treated by excision of the sac with

tightening of the internal ring; all other herniae should be treated by fascial repair; the Bassini operation and its modifications must be abandoned.

There is no evidence here for a *prima facie* case against the Bassini operation. Each surgeon must form his own opinion, but that opinion must be impartial, and founded on rock, not sand. The provocative opposition to the Bassini operation has stimulated an interest which must result in progress, for the treatment of hernia is not so satisfactory as it should be. It is of great importance now because the number of operations for hernia performed on servicemen is large. The combined loss of man-hours from these cases is enormous, and this loss is substantially increased if the recurrence rate is high.

Ogilvie, of England, for a long time has been a bitter opponent of the Bassini operation. His main arguments against the operation are three: (i) suture of the conjoint tendon to the inguinal ligament means a muscle working out of place; (ii) the abdominal wall is weakened; (iii) recurrence is favoured rather than prevented. These statements must be considered in detail, and the answer is found in the anatomy of the inguinal region.

The lowest fibres of the internal oblique arise from the lateral two-thirds of the inguinal ligament, and with the lower fibres of the *transversus abdominis* form the conjoint tendon. The union results in a sickle-shaped fold, which is inserted into the pubic crest and the medial three-quarters of an inch of the ilio-pectineal line. The direction of the fibres is downwards and medial. When the muscle contracts, it must do so in the direction of its fibres—that is downwards and medially. This results in the lower border's becoming straight, taut and approximated closer to the inguinal ligament. The natural action of the conjoint tendon is thus to draw itself downwards on contraction. In muscular people the conjoint tendon as such exists only at its insertion, and the muscle of the internal oblique and transversus is often so low that it abuts against the inguinal ligament in its natural position.

When the conjoint tendon is sutured to the inguinal ligament, as in the Bassini operation, the tendon is put in a position that is a slight exaggeration of the normal, and it is sutured in the direction of its pull. If unabsorbable sutures are used, fibrous union does occur between the two structures, despite statements to the contrary. Castigators of Bassini state that this fibrous union is not sound, will not withstand strain and has been achieved by the destruction of the muscle fibres. It is asserted that the insertion of sutures into the conjoint tendon to anchor it to the inguinal ligament strangles the blood supply, and causes a traumatic necrosis of the muscle fibres and their replacement by fibrous tissue. Is this strictly true? How often is it found that the lower inch or so of the conjoint tendon is completely devoid of muscle, and is a flat sheet of fibrous tissue of tendinous composition? Tendon is practically avascular, so how can a blood supply be strangled that does not exist? And how can fibrous tissue be changed into fibrous tissue?

When the tendon is sutured to the medial two-fifths of the inguinal ligament, its normal position is only slightly changed, as is the direction of the pull of its fibres; should not this union be considered an extension of the insertion of the tendon? If this is so, then the abdominal wall should be strengthened, for the tendon has a greater purchase. If the conjoint tendon is firmly attached to the inguinal ligament, and if the ilio-hypogastric and the ilio-inguinal nerves are intact, when the internal oblique contracts there can be no increased weakness of the abdominal wall.

If the Bassini operation weakens the abdominal wall, then recurrence when it takes place should be through the weakest spot, which is not at the internal ring but at Hesselbach's triangle. Recurrences should accordingly be direct rather than indirect. Experience shows that, irrespective of the original type of hernia, 66% of the recurrences are indirect; this proves that the wall cannot be weakened by the operation.

Antagonists of Bassini point to the good results achieved in children by simple ligation and excision of the sac, using this fact as an argument against mechanical repair.

They overlook the basic principles that in children the tissues are firm and tonic, that there is no anatomical distortion, that the sphincteric action of the internal ring is unimpaired, and, what is more important, that the older the child grows, the less is the chance of recurrence. In the child the size of the internal ring compared to the area of the abdominal wall is relatively much greater than in the adult. As the child ages, the size of the internal ring diminishes, owing to a "step-up" in the area and bulk of the abdominal wall, until man's estate is reached. Therefore the tendency to recurrence progressively diminishes as the child develops. Heavy work, stress and strain are potent factors in causing recurrence; but the child's musculature is not subjected to the same degree of strain as is the adult's, so that after operation the passing of the years permits Nature to effect a permanent cure.

These are the answers to the three statements by Ogilvie: the muscle is not working out of place, the abdominal wall is not weakened, and recurrence is not made easier.

Those who would discard the Bassini operation must of necessity put forward much weightier evidence than they have done. The Bassini operation is not suitable for every hernia, but it should be retained for those cases in which it is suitable—a decision for which the operating surgeon alone must be responsible.

#### ANATOMY OF INGUINAL HERNIA.

The anatomy of the inguinal region reveals in part the secret of success or recurrence. The inguinal canal is 1.5 inches long, and being cone-shaped, consists of an apex, a base and anterior and posterior walls. It runs obliquely from above downwards and medially. The apex is a finger's breadth above the mid-point of the inguinal ligament corresponding to the position of the internal ring. The anterior wall is formed throughout by the external oblique and the posterior wall throughout by the transversalis fascia, and placed between these two are the internal oblique and conjoint tendon, which encircle the canal, taking part in the formation of both anterior and posterior walls. The strength of the canal depends on the internal oblique. Anteriorly this muscle covers the lateral third of the canal including the internal ring and thus forms a part of the anterior wall; it then curves round as the conjoint tendon, and owing to the obliquity of the canal, it forms a posterior relation of the medial third of the canal. Where it forms the posterior wall the internal oblique has joined with the *transversus abdominis* to form the conjoint tendon. The floor is formed by the grooved surface of the inguinal ligament and by the lacunar ligament, which is the area of insertion of the inguinal ligament on to the ilio-pectineal line. The external ring is triangular in shape, admits the tip of the finger and is formed by the pillars of the external oblique. The floor of the canal is further strengthened by the transversalis fascia and by the insertion of the reflex inguinal ligament from the opposite external oblique into the ilio-pectineal line. Consideration must be given to the internal oblique and to the conjoint tendon, for these constitute the real strength of the canal.

Owing to the obliquity of the canal and the sickle shape of the conjoint tendon, when the internal oblique contracts it has a two-fold action, and the canal is compressed by two opposing forces. The internal oblique compresses the lateral third of the canal and internal ring backwards; the conjoint tendon compresses the medial third of the canal from behind forwards. The double action results in the formation of the two potential sphincters—one at the internal ring and lateral portion of the canal, the other at the external ring and medial portion of the canal. This opposing action explains why a bubonocoele is retained in the canal for a variable period. It breaks through the first sphincter and the internal ring, and is then delayed by the second sphincter at the external ring.

In the construction of the canal are two points of weakness: one is of necessity the internal ring; the other is the area just medial to the inferior epigastric vessels and

lateral to the pubic tubercle. It is at these two points that hernia occurs. Therefore, any operation must be designed to reinforce these two areas; otherwise it will fail.

#### RELATIVE FREQUENCY OF HERNIA.

Of hernia 75% are indirect, 25% direct. Recurrence rates for both types of hernia are variously estimated from 0% to 30%. The 0% figure can be discarded. The average figure is probably about 15% and will vary with the skill of the surgeon. Of the recurrences, 60% to 70% are indirect. This fact requires careful thought. It means that three-quarters of all hernia are indirect and three-quarters of the recurrences are indirect—that is that in 75% of the recurrences the original hernia is reproduced. One most important fact is thus brought to light, for it is obvious that at operation for both types of hernia the surgeon has failed to deal adequately with the internal ring. The explanation why most hernia recur as indirect hernia is simple and is indirectly wrapped up in the internal ring. In my experience, fully 66% of the so-called direct hernia have no claims whatever to be called direct hernia, for the hernia is a combination hernia with both direct and indirect sacs. This calls for a revision of the nomenclature and of the relative frequency of the various types of hernia. The figures should read: indirect hernia 75%, combination hernia 15%, direct hernia 10%. In 66% of the direct hernia, if a search is made at the beginning of the spermatic cord at the internal ring, a small indirect sac will be found. This is never more than an inch long, is very fragile, is non-adherent and has never been filled with contents. If this fact is not recognized at operation for direct hernia and the search is not made for the indirect sac, then the seed is sown for the growth of an indirect recurrent hernia, and the operation has been a failure. This explains the frequent recurrence of so-called direct hernia as indirect hernia. The funicular hernia of Ogilvie is not a separate hernia, but a direct hernia which has come through a small aperture in the posterior wall of the inguinal canal just lateral to the pubic tubercle.

#### CAUSES OF RECURRENCES.

All indirect hernia are congenital, and Nature has fallen down on her job. It is thus beyond our means to prevent the occurrence of hernia; but by adequate operation planned on physiological and anatomical grounds the condition can usually be cured and recurrences largely prevented. The causes of recurrence in general can be labelled in most cases as bad surgery, due to ignorance of the condition, and these causes can be grouped under the following headings.

#### Poor Technique.

Poor technique covers a multitude of sins—brutal handling of the tissue, tearing instead of cutting and stripping, faulty hæmostasis, inadequate treatment of the sac, missing of the sac, insertion of sutures under too great a tension, faulty knots, injury of the ilio-hypogastric and ilio-inguinal nerves, incomplete knowledge of the mechanics of hernia, a lax aseptic technique, and lastly, tedious surgery.

#### III-Advised Operation.

If the surgeon has a faulty conception of the mechanics of hernia formation, he cannot perform the appropriate operation required for each type. He fits the patient to a standard operation and does not plan his operation to fit the patient.

#### Faulty Pre-Operative Supervision.

The general physique of the patient is important. A repair should not be performed during a period of ill-health, and all general diseases should be eradicated. Toneless, atrophic tissues must be rebuilt, muscles strengthened and the patient's general condition improved. Complacency in repair of hernia cannot be tolerated. The best time to operate on a hernia is when it first occurs. Too often does the medical man say: "Yes, you have a rupture, but it does not matter much, you can have it fixed up if it troubles

you." Apart from subjecting the patient to the complications of hernia, the medical man must remember that a hernia is never stationary—all the time it is increasing in size and insidiously causing greater and greater anatomical distortion, and the cure is gradually passing from a simple to a more difficult operation with the greater chance of recurrence. In the case of the large, irreducible, scrotal hernia the patient should be put to bed for a period of time in a moderate Trendelenburg position, and compression spica bandages should be used; often the hernia will be spontaneously reduced. If this occurs, the elastic tissues will take up and a difficult operation will be made easier.

#### Faulty Suture Material.

In a mechanical repair operation the tissues are sutured under slight tension, otherwise a firm repair will not result. Therefore, as the tissues are sutured under some tension, they must be firmly anchored until union occurs. In the case of tissues that are relatively avascular (such as fibrous and tendinous tissues), this apposition must be maintained for a much longer period than in the case of tissues with a good blood supply. Success in these cases thus depends on the sutures, which must be non-irritating and unabsorbable. Silk, thread or stainless steel wire are the sutures to use, and the best of all is silk. This applies also to chromicized gut. Silk is the ideal suture, and it must be used for the whole operation; bleeding points must be tied with it and it must be used in each stage of the repair. Catgut should not be used in combination with silk. The dictum that Halstead gave to the world long ago still holds good—that if silk is used it must be used alone, and not in conjunction with catgut.

In the use of silk there are three points that are to be remembered. The knot must be a surgical knot—that is, a double twist in the first part completed as a reef knot—or else a triple knot. Silk thicker than necessary must not be used, and lastly, if the knot is tied as advised, it will not slip and the threads should be cut directly on the knot, so that long ends are avoided.

#### Post-Operative Complications.

Despite every effort, post-operative complications will occur. The aim should always be to prevent them and thus minimize their occurrence.

#### Pulmonary Complications

Pulmonary complications are common, irrespective of the type of anaesthesia used, and as such favour recurrence. Careful pre-operative care should be given, particularly to the heavy smoker. Nicotine before operation is a potent cause of trouble after operation. Heavy smoking results in rhinitis, sinusitis, pharyngitis and a "dirty" mouth. The soil is thus present in which the seed may grow. Smoking should be stopped, or at least reduced to a minimum, for two weeks prior to operation. If this is done, upper respiratory infection will largely subside, the "dirty" mouth will become clean and the possibility of pulmonary complications will be lessened.

The anaesthesia used is of no importance; complications occur equally after any form. My own preference is for spinal anaesthesia, for it gives perfect relaxation and avoids post-operative vomiting.

#### Sepsis.

If sepsis occurs, recurrence is almost inevitable. Sepsis causes oedema, tension, inflammation, hyperaemia, cutting-out of sutures and delayed healing. It can be avoided by adequate skin preparation, the use of side towels, careful surgical technique and perfect haemostasis.

#### Complications Due to Faulty Post-Operative Care.

A common cause of recurrence is to allow the patient up too soon. Bodily activity must be eliminated until healing occurs. If this is not done, the whole strain of the abdominal wall is taken by the sutures, in which case the surgeon asks too much. Relatively avascular tissues, such as fibrous tissues and tendon, require three times as long

for healing as vascular tissues, such as muscle. In respect of a hernia operation, the period of stay in bed is thus obvious. After the simple excision of the sac the only fibrous tissue sutured is the external oblique; therefore the stay in bed must be two weeks. When a mechanical repair is performed, such as a Bassini operation, the stay in bed must be longer—a minimum period of three weeks. For most patients with poor physique and large hernia, the stay in bed must be four weeks. If a post-operative complication occurs—particularly sepsis—the rest period is proportionately longer. The time in bed can be profitably employed by the institution of gentle abdominal exercises starting not before the beginning of the third week. No lifting is to be done for a minimal period of two months from the time the patient is allowed out of bed, and during this period the patient takes gentle physical training. At the end of three months from the time of operation the patient makes a start on heavy work, and this is increased over the next month. By the end of four months there are no restrictions. Should the work be very heavy during this fourth month, a light abdominal belt should be prescribed in order to take the general abdominal strain.

#### How is Hernia to be Treated?

There are only two hernia operations that should ever be performed: (i) simple excision of the sac with tightening of the transversalis fascia; (ii) a modified Bassini repair, alone or combined with fascial graft. All other operations are superfluous.

#### Simple Excision of the Sac.

Simple excision of the sac is the operation of choice for early, small, indirect hernia. The cases must be carefully selected. The patient is usually young and his abdominal muscles are firm, tonic and well developed. No anatomical distortion must be present, which means that the hernia must be of short duration. The sac is ligated and excised just above the neck, the spermatic cord is not dislocated from its bed, the transversalis fascia is tightened and the internal ring is narrowed until it fits snugly around the cord.

#### Modified Bassini Repair.

The modified Bassini repair operation must be performed in all cases that do not come into the above-mentioned class—namely, all direct hernia, all combined hernia and all indirect hernia that are chronic, large and adherent. In short, it must be performed in all cases in which there is any distortion of the abdominal wall, however slight it may be, and it must always be performed in the case of recurrent hernia.

#### Technique of the Modified Bassini Repair.

The original operation of Bassini is never strictly followed by the writer. The broad principles are the same, but the scope of the operation is enlarged in order to strengthen the weak points on the canal.

The incision is made through the skin and fascia, and skin towels are sutured on; a four-inch incision is made in the external oblique in the direction of its fibres. This incision must come well forward over the pubic tubercle, which must be exposed, and free access must be given to repair this weak point in the abdominal wall. This incision goes through the external ring, and the edges of the divided external oblique are picked up with haemostats and widely retracted. The upper portion is stripped up with the finger from the internal oblique to the point of its union with that muscle. The lower portion with the inguinal ligament is carefully cleaned on its proximal and distal surfaces. The ilio-hypogastric and ilio-inguinal nerves are picked up and held out of the way. The spermatic cord is then freed from the surrounding tissues just above the pubic tubercle by passing the fingers from side to side underneath it, and a piece of gauze is then passed through so that the cord can be elevated when necessary. The bulk of the cord is not displaced. The cremasteric fascia is incised longitudinally and the edges are retracted. The sac will then be found on the antero-medial aspect of the cord.



The fundus of the sac is picked up with a haemostat, and the sac is freed by being stripped with gauze on the finger and by occasional touches with the scalpel. When the sac is freed as far as possible, it is opened at the fundus, and a finger is inserted and used as a foundation on which to strip with the finger of the other hand. The sac must be freed until the area above the neck is clear, as indicated by its collar of extraperitoneal fat. This area above the neck is transfixed with two separate sutures of silk. These sutures are passed from either side, and each pierces the sac so that about three-quarters of the sac is enclosed in each bite and the sutures are so placed that they interlock. These sutures are tied and a second single transfixion suture is tied just distal to the first. The redundant portion of the sac is removed. On excision of the sac the stump will retract deep down, and this is the first reason why the sac must be tied high. The second reason is to ensure that all the sac is removed.

The incised cremasteric fascia is now united with a few interrupted silk sutures cut directly on the knot. In the freeing of the sac up so high, there is one important fact to remember: often the bladder is closely opposed to the neck of the sac, particularly in the case of large herniae. Unless this is remembered and care is displayed, troublesome haemorrhage may occur from veins on the bladder wall. If the bladder cannot be identified and abnormal haemorrhage occurs, then it is certain that the bladder wall is being traumatized. Do not expect to see rich red muscle fibres; the fibres are pale and anæmic, and close inspection must be made in order to identify them as muscle. Should excess haemorrhage occur, then nothing further is done until it has been absolutely controlled (this control is sometimes difficult). If haemorrhage is not controlled, a frequent result is the development of a large extraperitoneal haematoma, which takes many weeks to absorb and often suppurates. A scalpel should never be used in this area, otherwise puncture of the bladder will result. The danger of puncturing the bladder is not in committing it, but in not recognizing that it has been done. If the bladder is cut into, the opening is doubly sutured and at the conclusion of the operation an in-dwelling urethral catheter is inserted and left for seven days, fluids are "pushed" and a sulphonamide is given.

The next step is completely to free the under-surface of the conjoint tendon from the transversalis fascia until it can be grasped as a separate entity. This freeing of the conjoint tendon is important, for in most cases it permits the tendon to be sutured to the inguinal ligament without tension. The two points of weakness in this area are at the internal ring and just lateral to the pubic tubercle; the repair must aim at strengthening these two points.

The first step is to strengthen and tighten the transversalis fascia. This is done either by a purse-string suture or by interrupted silk sutures. The internal ring is now narrowed by interrupted sutures placed on the infero-medial surface until the ring is comfortably tight and admits only the tip of the finger.

The next detail in technique is to suture the neighbouring lateral border of the rectus sheath, the area of the *linea semilunaris*, to the periosteum of the pubic tubercle. The needle must be felt to bite in and the suture grip hard. This is the most important stitch in the whole repair. It fixes the most medial point of the conjoint tendon and relaxes the rest of the tendon, enabling it to be sutured to the inguinal ligament without tension. Rarely it will be found in placing this stitch that the tension is too great; if so, the suture must be taken out, and a semilunar fold of the anterior rectus sheath hinged on the lateral border of the muscle must be brought down and sutured in a similar way to the periosteum of the pubic tubercle and the commencement of the inguinal ligament. This effectively shuts off the weak point in this area.

Vertical mattress sutures of silk are then used for the repair. The fibres of the inguinal ligament run longitudinally. Thus sutures must not be inserted parallel to the fibres, but across them; otherwise they will tear out, split, mutilate and weaken the ligament, and so weaken

the repair. The second important point in the application of these sutures is that they must be tied on the distal surface of the inguinal ligament—that is, on the femoral triangle side. This permits the conjoint tendon to be brought into the greatest possible contact with the inguinal ligament, and the sutures can be tied more securely and a sounder repair results. The conjoint tendon is stitched to the inguinal ligament by interrupted sutures until it fits snugly under the cord emerging from the internal ring. One or two sutures are now inserted above the cord uniting the internal oblique to the inguinal ligament. This is an important step in strengthening the internal ring, for the repair is now firm all round the emerging cord. In all, about seven sutures are required.

The two nerves are now replaced and the external oblique is repaired with interrupted "figure of eight" sutures. The external oblique may be redundant; this is often the case in big hernia. If this is so, it is overlapped after the method of Mayo. If it is considered that the repair should be further strengthened, fascial strips should be used from the external oblique and plaited into the repair. This method of using the external oblique fascia will be described later.

This is the modified Bassini operation which the writer considers should be performed in all cases in which the operation is indicated.

#### Direct Hernia Repair.

Except for the method of dealing with the sac the operation of repair for direct hernia is the same as the modified Bassini operation described. An ever-present danger in these herniae is the close proximity of the bladder; but despite this close association the sac must be completely freed until the surrounding peritoneum is taut. If haemorrhage occurs (which it often does), nothing further is done until it is controlled. If the sac is large, it must be treated in the same way as an indirect sac, and the redundant portion must be removed. Occasionally it is found that when the sac is freed it is small. In these cases the sac should be opened, surrounded by a purse-string suture under direct vision and then invaginated.

It is of the utmost importance in dealing with a direct sac to see whether there is an indirect extension into the base of the cord. If so, the two sacs are converted into one large direct sac by pulling the indirect out into the direct sac. On no account are the inferior epigastric vessels to be divided, as is advocated by some surgeons. They form an important stanchion in the strength of the posterior wall.

In the case of large scrotal herniae of the indirect type (the sacs of which are adherent and thickened), after the repair has been performed, the bottom of the scrotum must be opened and a tube inserted to provide drainage, for these herniae often ooze after operation. If drainage is not provided, blood or serum tracks down into the scrotum, the haemorrhage being concealed. A scrotal haematoma will result, which may reach an alarming size, burying the penis. If adequate drainage has not been provided and this complication occurs, the blood must be rapidly aspirated. But blood clots quickly, and usually by the time the trouble is discovered aspiration is impossible because of soft clot. The only thing to do then is to incise the bottom of the scrotum, turn out all clot either mechanically or by flushing with saline solution, and establish drainage. In elderly men with large herniae it is justifiable to remove the testis and cord in order to obtain a sounder repair. The patient should always be warned of this possibility before operation.

#### Gallie's Operation and Fascial Repair.

In the opinion of the writer there is no place in hernia repair for the operation practised by Gallie. There are several objections to the operation. The method of getting the fascial strips is unnecessary and time-consuming, and time is a factor in recurrence. The fasciotome should never be used, as it leaves a weakness in the thigh despite assertions to the contrary by its advocates. It causes a muscle hernia which is unsightly and constitutes a weak-

ness. Hemorrhage cannot be controlled, and a hæmatoma sometimes occurs. A final objection is that some patients for long afterwards complain of pain over this area. A first axiom in surgery is never to replace one wrong by another.

If the surgeon wants to take fascia from the thigh, he should do it by the open approach. He should cut down on the fascia, strip off the required amount, then suture the gap in the muscle sheath so that no harm will result. This method of obtaining fascia is seldom, if ever, needed. In the case of large herniæ of long standing, when the tissues are stretched, attenuated and distorted, a fascial repair should be used in addition to the modified Bassini repair; but a fascial repair should not be used alone. In these cases the external oblique is always redundant, and this muscle will provide all the fascia that is required. A long skin incision is used in the direction of the fibres of the external oblique, the repair is performed as advocated, and strips of fascia are then obtained from both upper and lower borders of the tendon. These strips must be left anchored at one end. The beginning of the suture is thus anchored, greater security being obtained with no waste of fascia. The strips should be thin enough to be threaded through a large non-cutting needle, and they should be darned into the modified Bassini repair already performed. Their insertion must be through the conjoint tendon and inguinal ligament anterior to sutures used in the Bassini repair. If this is done, the inguinal ligament will not be mutilated, a double repair will be effected and added security will be given. Fascial sutures must never be inserted under tension. The Gallie needle should never be used for introducing the fascial strips; it is cumbersome, it has a cutting point, it is far too big, and it irretrievably damages the inguinal ligament and is one cause of weakening the abdominal repair.

It is impossible in some cases to diagnose the type of hernia, and operation alone will reveal whether the hernia is indirect or direct. It is well to remember also that in older people if bilateral hernia is present it is usually direct. As a final injunction, the successful repair of a hernia is a difficult operation. The patient with a hernia is not a guinea-pig on whom the budding surgeon should learn the first principles of surgical practice.

#### SURGICAL TREATMENT OF HERNIA IN AUSTRALIA.

Hernia is a common condition, and post-operatively requires a prolonged period of rehabilitation. Loss in wages, expenses incurred, compensation and loss of effective working hours are considerable. The importance of securing a permanent cure at the first operation is thus evident. In Australia most general practitioners carry out their own hernia operations, and this form of surgery is not the sole prerogative of specialist surgeons. The operation performed is invariably a Bassini modification, and the results represent the individual efforts of many surgeons—good, bad and indifferent. The following figures are offered for contemplation, in order that the importance of this condition may be appreciated. The operations were performed in only one of the many military hospitals in Australia—a hospital to which the writer was attached.

Seven hundred operations were performed, of which 52 were for recurrent herniæ—a percentage of 7.5. Whilst not a strictly accurate assumption, it can be stated that this figure of 7.5% approximately represents the recurrence

rate in Australia, where the Bassini operation is universally performed for all herniæ except those not associated with anatomical distortion of tissue planes. Further, the recurrence rate in troops is probably higher than in civilians, because of the increased severity of their work. In this case the percentage recurrence rate in civilians is probably lower. These figures are striking from another viewpoint. Seven hundred hernia operations, performed in one hospital over a period of eighteen months, meant the complete immobilization of a full battalion of men for a period of three months. If the whole Australian Imperial Force is considered—and, further, the whole Allied services—the loss of fighting personnel from this condition alone is appalling.

In the Australian Imperial Force the approximate recurrence rate is 7.5%. In the civilian populace it is probably lower. How, then, can the opponents of Bassini fairly insist that his operation be discarded?

#### SUMMARY.

1. The aim of this paper is an attempt to answer the critics of Bassini.
2. The evidence given by the opponents in condemnation of the operation has been considered in detail.
3. Reasons have been given for retention of the operation—reasons built on the sound foundation of anatomy, physiology and results.
4. Herniæ in general have been discussed and a form of treatment has been recommended.

#### CONCLUSION.

The Bassini operation must not die. It must be retained in surgery until such time as the ideal is found. To abandon the operation would be a retrograde step in the repair of herniæ, and recurrences would inevitably increase.

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#### THE SALIVA FACTOR IN PEPTIC ULCERATION.

By L. J. J. NYE,  
Brisbane.

In the aetiology and treatment of peptic ulcer many theories have been advanced and have had enthusiastic support for some years, but eventually have been discarded because they have failed to stand up to the therapeutic test. It is, however, now believed with good reason that ulcers are caused by peptic digestion of the gastric mucosa by the hydrochloric acid of the gastric juice. The question which must be asked is, why does the mucosa in certain subjects at certain times lose its capacity to defend itself against this ever-present and natural secretion? Is it due to some factor or factors in the lives of these subjects which cause an increase in the production of hydrochloric acid? Is it due to alteration in the quantity and quality of the protective mucus which is adherent to the mucosa? Is it some pathological process or decreased resistance in the mucosa itself? Is it caused by eating coarse food too rapidly, or do all the above-mentioned factors play a part?

It is well known that many sufferers from duodenal ulcer have been in the habit of "bolting" their food, and it is of interest to speculate whether this may be one of the aetiological factors, for in addition to failure to pulp the food, there is insufficient time for it to become mixed with saliva. The pulping of the food with the teeth is not the only purpose of chewing; the thorough mixing with saliva plays a much more important part in digestion than is usually believed. It is well known, for instance,

TABLE II.

Period.	Inguinal Hernia Operations.	
	Primary Hernia.	Recurrent Hernia.
January 7 to December 31, 1943 .. ..	419	41
January 7 to June 30, 1944 .. ..	229	11
Total .. ..	648	52

that persons fed through a gastrostomy tube digest their food better and gain in weight if the food is first chewed in the mouth and mixed thoroughly with saliva before being injected into the stomach. Moreover, many dyspeptics know that, if they eat mince meat, it is not well tolerated unless it is well mixed with saliva before being swallowed. Another interesting observation is that most people can obtain relief from heartburn, flatulence and hyperacidity merely by swallowing saliva.

This suggests that the saliva factor in dyspepsia is worthy of more careful consideration than has been given to it in the past. It has not been fully established how saliva aids in digestion. It is believed that in the actual process of digestion saliva plays an insignificant part. There are no enzymes in saliva that could convert proteins or fats into absorbable forms; but polysaccharides are converted to disaccharides by the ptyalin.

Opinions have been put forward suggesting the presence of some hormone in saliva which has some regulating effect on carbohydrate metabolism as well as some influence on gastric secretion; but the evidence presented in favour of this hypothetical hormone is conflicting.

It is possible that mucus is an important factor. There is a variable amount of mucin in saliva, and although it is not known how it acts, mucin has been shown to be an important aid in the treatment of peptic ulceration. Possibly it has direct action on the secretory tubules as well as a neutralizing effect.

It must be remembered also that the gastric mucosa is covered by a protective layer of viscous tenacious mucus with a pH between 4.0 and 7.0; this protects the mucosa from the highly acid gastric juice, which has a pH of perhaps less than 2.0. There is also a certain amount of evidence to show that in peptic ulcer patients an inadequate amount of mucus is secreted, both in the gastric mucosa and in the saliva. Wolf and Wolff,<sup>(1)</sup> working on their man with a permanent gastric fistula, showed the importance of mucus in controlling gastric acidity and preventing ulceration. They found that, when the mucus secretion was continuously removed by suction from the wall of the stomach, there soon appeared a tiny erosion which rapidly developed into a typical peptic ulcer. If mucus was allowed to flow again on this surface it would soon heal.

The recent work on lysozyme, which is a powerful bacteria-dissolving substance found in egg white and saliva, suggests that it may serve the important purpose of defending the gastric mucosa against bacterial invasion. It is significant, too, that the amount of lysozyme in the saliva varies not only in different subjects, but in the same subject at different times.

The neutralizing effect of the salivary fluid is also important. In a series of 22 patients with dyspeptic symptoms it was found that the pH of fasting gastric juice varied between 4.2 and 6.9, the average being 5.4. The pH of the saliva taken at the same time varied between 6.1 and 6.9, the average being 6.5, and in all cases the salivary pH was higher than that of the gastric juice.

The salivary glands have both sympathetic and parasympathetic innervation. The flow of saliva is not continuous, but is regulated by the nervous system and depends on certain food, chemical and emotional stimuli. It is a matter of common experience for the mouth to become moist at the smell of food or dry during certain emotional states. Wolf and Wolff found the average accumulation of saliva during the three hours of a "control" morning was 40 millilitres; but one day, when the subject was depressed, it was only 10 millilitres, and later, during a day of intense resentment, it was 72 millilitres.

Babkin<sup>(2)</sup> refers to Baxter's work in his laboratory; Baxter, after section of the auriculo-temporal (secretory) nerve root, found that the salivary glands were able to secrete saliva nearly normal not only in quantity, but also in chemical composition. Babkin then makes the following statement:

It would be risky to suggest that the sympathetic supply is alone responsible for such remarkable and specific actions on the part of the glands to different stimuli. It seems more likely there are other nerve channels through which parasympathetic impulses may reach the glands.

Babkin further states that in certain circumstances the sympathetic and parasympathetic nerves act not antagonistically but synergically.

In animals undoubtedly there are positive salivary conditioned reflexes (alimentary, sexual *et cetera*) which increase or decrease the response of the glands to certain stimuli. In dogs the ordinary phenomenon is the inhibition of salivary secretion in case of fear and even at the sight of anything unusual (the so-called "orienting" reaction).

However it acts, there is evidence to show that more consideration should be given to the question of the quantity, quality and effective utilization of saliva in the dyspepsias. In order to take full advantage of certain qualities inherent in saliva, it would appear that in the treatment of all dyspepsias the thorough mixing of all food with saliva is essential and alkaline lozenges should be effective not only for their neutralizing effect, but because they stimulate a flow of saliva which also has an antidyseptic effect, for it has been shown that the presence of alkali in the mouth evokes a copious secretion of saliva rich in mucin, and the act of sucking also increases the flow.

I have experimented with satisfactory results with lozenges made of calcium carbonate, magnesium carbonate, sodium citrate and sugar. Not only do they give relief in hyperacidity, heartburn and flatulence in most cases, but the amount of alkali needed for this purpose is much less than when the usual alkaline powder is used. Furthermore, the lozenges are a much more convenient form of medication, as they can be carried in the pocket or kept in a box at the bedside.

#### Conclusion.

This article does not claim to have propounded any new definite conclusions. It merely submits a theory which it is believed may add something to the knowledge of treatment of dyspepsia and peptic ulceration and may serve as a stimulus to further experimentation.

#### References.

- <sup>(1)</sup> S. Wolf and H. G. Wolff: "Human Gastric Function".
- <sup>(2)</sup> A. Babkin: "Secretory Mechanism of Gastric Glands", page 520.

### Reports of Cases.

#### AN IMMUNE ANTI-M ISO-AGGLUTININ IN HUMAN SERUM.

By R. J. WALSH,  
Major, Australian Army Medical Corps,  
Australia.

THE agglutinogens M and N are of medico-legal interest, but are not usually considered in blood transfusion work. The anti-M and anti-N iso-agglutinins are only rarely found in human serum. The anti-M agglutinin has been reported on seven occasions and the anti-N agglutinin once. Wiener<sup>(1)</sup> states that in four instances the anti-M agglutinins were of natural occurrence and were not produced by iso-immunization. The references to these reports are not available to the writer. Wiener and Forer<sup>(2)</sup> have recorded the finding of a serum which contained an anti-M agglutinin as well as an anti-Rh agglutinin. Clinical details of this patient are not recorded, but Wiener<sup>(1)</sup> states that the agglutinins were produced as a result of iso-immunization from blood transfusion. Wiener<sup>(3)</sup> reported a further patient, a woman, in whose serum an anti-M agglutinin was found. This patient had received a transfusion of blood one month previously, and no abnormal agglutinin was detected at the



time. The patient described by Paterson, Race and Taylor<sup>(4)</sup> had never received a transfusion of blood, and although she had four children, none had suffered from hæmolytic disease of the newborn. The four children all possessed the agglutinin M. The serum in which the anti-M agglutinin was detected was obtained from the mother four months after the last child was born. It is impossible in this case to determine whether the anti-M agglutinin was natural in occurrence or whether it was produced by immunization of the mother with the foetus's red blood cells during pregnancy.

Singer<sup>(5)</sup> has reported the only serum in which an anti-N agglutinin has been found; he considers that the agglutinin was the result of iso-immunization following a transfusion of MN blood seven days previously. As the agglutinin in this case could not be detected by the usual methods of cross-matching, there would appear to be little justification for the assumption. The anti-N agglutinin could have been of natural occurrence.

A further instance of a human serum containing an anti-M agglutinin is now reported. Although there is no absolute proof, it seems probable that the agglutinin resulted from iso-immunization.

#### Clinical Record.

The patient, a female, aged sixty-two years, had suffered since 1939 from a blood dyscrasia diagnosed as pernicious anaemia. Since that time response to liver and iron therapy had been unsatisfactory, and between 1939 and 1943 she received at least seven blood transfusions. No details of these transfusions are available; but the blood donors have been compatible on all cross-matching tests. Difficulty of administration has been frequently encountered, as the patient's superficial veins are extremely small. Her elbows, forearm and legs have numerous scars due to incisions over the veins. In June, 1943, she received three transfusions of blood. The first was discontinued after 200 mls had been administered because of a rigor; 600 mls of blood were given on the second and third occasions, the second transfusion being without incident and the third associated with a slight transient rigor. On February 15, 1944, she was again admitted to hospital with a remission of anaemia, and was given blood transfusions on two occasions. The second transfusion was administered intrasternally, because no suitable vein could be found. After 400 mls had been given the transfusion was discontinued, because the patient became cold, broke out into a sweat and complained of pain in the chest. No jaundice was noted and no hemoglobinuria was found. A further transfusion was contemplated on March 13, 1944, but a gross incompatibility was detected on cross-matching tests with blood of a homologous group.

#### Investigation.

An investigation was carried out. Blood was obtained with difficulty from a vein. A suspension of red blood cells in 2.6% sodium citrate solution was made and serum of icteric tinge was separated. When the cells were tested, the patient's blood was found to belong to group A, subgroup A<sub>2</sub>, and to group N, and the cells were Rh-positive. Her serum agglutinated all group B cells and the majority of group A cells, both subgroups A<sub>1</sub> and A<sub>2</sub>, and group O cells that were available. The Rh factor could not have been involved, because some Rh-negative as well as Rh-positive cells were agglutinated. Agglutination was distinct to the naked eye, and large clumps of agglutinated cells appeared within five minutes of the mixing of the serum and cells on a slide at room temperature. It was also obvious when the mixture was made in test tubes and incubated at 37° C. The serum was then mixed on a slide with equal parts of a citrate suspension of red blood cells of the following known constitution:

OMN Rh +	.....	4 samples, all positive (+)
OM Rh +	.....	4 samples, all positive (+)
AM Rh +	.....	1 sample, positive (+)
ON Rh -	.....	1 sample, positive (+)
ON Rh +	.....	5 samples, all negative (-)

By the application of Fisher's formula (quoted by Paterson, Race and Taylor)<sup>(6)</sup> —, where  $a$  represents the number of

positive reactions and  $b$  the number of failures to react in a total number  $n$  tested, it can be calculated that the odds in favour of the antibody's being anti-M are 3,002 to one.

Complete absorption of the antibody was effected with an equal volume of washed OM cells. This absorbed serum did not agglutinate M or MN cells. The antibody was titrated against OM and OMN cells by allowing a mixture of the cells and serially diluted serum to remain in contact for one

hour at room temperature. Readings were made with the naked eye after the cell-serum mixtures had been transferred from tubes to a flashed opal glass slide. The titre was found to be 1 in 32 in both instances.

#### Discussion.

It seems unlikely that the anti-M agglutinin could have been of natural occurrence, since in that case it would almost certainly have been detected earlier in cross-matching tests. If, however, it was present in small amounts and was overlooked, it must certainly have increased in titre as a result of immunization. It appears much more probable that the agglutinin was the direct result of iso-immunization from previous transfusions, but the blood groups of previous donors are not known. It is statistically improbable that all belonged to group N. The possibility that the antigenic stimulus was provided by a foetus—the only two pregnancies had occurred forty-six and thirty-two years earlier—cannot be overlooked; but it is not at all likely that an immune antibody would have survived in the blood stream for thirty-two years. There is no evidence that either child suffered from hæmolytic disease of the newborn.

#### Acknowledgements.

The assistance of Dr. A. H. Tebbutt is gratefully acknowledged. Facilities for the investigation were provided by the New South Wales Red Cross Blood Transfusion Service. The Director-General of Medical Services has given permission for publication of the report.

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- <sup>(1)</sup> A. S. Wiener: "Blood Groups and Transfusion", Third Edition, 1943.
- <sup>(2)</sup> A. S. Wiener and S. Forer: "A Human Serum Containing Four Distinct Iso-Agglutinins", *Proceedings of the Society of Experimental Biology and Medicine*, Volume XLVII, June, 1941, page 215.
- <sup>(3)</sup> A. S. Wiener: "Hæmolytic Transfusion Reactions: Prevention, with Special Reference to the Rh and Cross Match Tests", *American Journal of Clinical Pathology*, Volume XII, June, 1942, page 302.
- <sup>(4)</sup> J. L. Hamilton, Paterson, R. R. Race and G. L. Taylor: "A Case of Human Iso-Agglutinin Anti M", *British Medical Journal*, Volume II, July 11, 1942, page 37.
- <sup>(5)</sup> E. Singer: "Iso-immunization against Blood Factor N", *THE MEDICAL JOURNAL OF AUSTRALIA*, Volume II, July 10, 1943, page 29.

## Notes on Books, Current Journals and New Appliances.

### THE COMMODORE.

We have at last been privileged to make the acquaintance of that versatile sailor, Captain Sir Horatio Hornblower, R.N., and we feel that the introduction has been too long delayed.<sup>1</sup> In fact, it is almost impossible to believe that the gallant captain is an apocryphal figure. In his book, C. S. Forester has skillfully outlined a background of international politics, life at sea and military operations, beginning a short time before Napoleon Buonaparte's fateful attack on Russia. Hornblower is given a delicate mission in and around the Baltic, and, as commodore in command of a squadron of the Royal Navy, sets out to carry it out. It is unnecessary to go into detail of how he does so; Captain Sir Horatio Hornblower, we learn, is famous for ingenuity and luck. The characters are living people and the tale is exciting and well told; but obviously it is merely the vehicle by which the reader is given a true appreciation of the very human and lovable hero. To his comrades and subordinates he appears a man of unswerving decision and iron will; we are privileged to observe the mental and emotional processes which go on behind the scenes—to know how this outwardly rock-like man conquers his genuine fear of the huge responsibility that is laid upon him. At the close of the book, Hornblower, his mission accomplished with something more than the success expected of him, is left, obviously about to suffer from a serious illness, which may be plague. Let us hope that Mr. Forester will take pity on his readers and not leave them in suspense for another six years—the period that elapsed between the previous "Hornblower" novel and "The Commodore".

<sup>1</sup> "The Commodore", by C. S. Forester; 1945. Sydney: Angus and Robertson, Limited; London: Michael Joseph, Limited. 7½" x 5", pp. 270. Price: 8s. 6d.

## The Medical Journal of Australia

SATURDAY, JANUARY 26, 1946.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

### THE RETIREMENT OF SURGEON CAPTAIN W. J. CARR.

EVERYONE will agree that the head of a service, particularly of a medical service, sets the standard of efficiency and devotion to duty of its members. This has been shown over and over again in the war to which we refer as having just ended. Australian doctors have good reason to be proud of the medical services of the sea, land and air which they joined willingly and in such large numbers. That they will acknowledge their own and the country's indebtedness to the medical directors there is no shadow of doubt. Of the three services, that of the Navy is the only one which before the war could be said to have a staff of permanent medical officers. In 1933 the Royal Australian Naval Medical Service had 28 medical officers; of these, 15 were permanent officers, 11 belonged to the Royal Australian Naval Reserve, one belonged to the Royal Australian Naval Volunteer Reserve, and one was on loan to the Royal Navy. It was this service which Surgeon Captain W. J. Carr was called on to control at the outbreak of war. On January 31, 1946, he is to retire from the command. The occasion should not be allowed to pass without comment; Captain Carr has served the Commonwealth and the Empire with the utmost devotion and in the best tradition of the "Silent Service", and this should be acknowledged.

With the outbreak of war the Royal Australian Navy increased its number of ships and the number of its fighting personnel. The number of medical officers increased with the number of ships and men. Security reasons made it undesirable to refer to new ships as they were commissioned, but it may be remarked that the appointments to the navy were promulgated without interruption in the *Commonwealth of Australia Gazette*. In the year 1945 the Royal Australian Naval Medical Service

comprised 110 medical officers. Of these, 14 were permanent medical officers; 83 belonged to the Royal Australian Naval Reserve, and six to the Royal Australian Naval Volunteer Reserve; seven were on loan to the Royal Navy. In other words, the administrative duties of the director of the service and his responsibilities had grown enormously. The advent of the Royal Navy to Australian waters threw extra work onto Captain Carr's shoulders. To him was allotted the task of working out the plan for the posting of the British Pacific Fleet's medical establishment in Australia. He made all the hospital arrangements and also those for the supply of medical equipment. This was in August, 1944, and with the smallness of his staff (he has only one medical staff officer) the extra work was no sinecure. Through the six years of war Surgeon Captain Carr has thus carried a steadily growing burden of work and responsibility. The medical profession of Australia and those outside its ranks who have given any thought to the subject cannot understand why no promotion has come to him. By every standard known to the non-naval observer promotion has been earned. In any case it is ridiculous that so important a service as the medical service of the Royal Australian Navy should carry with it no rank higher than that of captain. This rank is the equivalent of colonel in the army. We maintain that Surgeon Captain Carr should on his retirement be promoted to the rank of surgeon-rear-admiral and that the promotion should be dated from January, 1945, when the main body of the Pacific Fleet came to Australia. But whether the parsimonious Royal Australian Navy does what it should do in this matter or not, it should be known in naval and non-naval circles that the medical profession of the Commonwealth holds Surgeon Captain Carr in high esteem, is grateful to him for consistent first-class work, and wishes him peace and contentment in his retirement.

### THE JOURNAL AND THE RECENT INDUSTRIAL UNREST.

THE last few months of the year 1945 and January of 1946 have been very difficult for those concerned in the production of THE MEDICAL JOURNAL OF AUSTRALIA. Now that the acuteness of the difficult period has passed, it has been thought that a short statement should be made for the information of readers. At the beginning of the war the manager of the journal was faced with the demand for economy in the use of paper. Certain restrictions were imposed under National Security Regulations in regard to the use of paper and other matters. These have been faithfully observed. There is no need to quote details of the amounts by which paper had to be reduced or of the difficulties in securing an adequate supply of paper. What is important is that readers should appreciate how valuable for them has been the reduction in the size of type which was undertaken in August, 1940. An eight-point type was substituted for what had previously been printed in ten-point, and seven-point type for what had been eight-point. The effect of the change in type was that the amount of letterpress available to readers was practically unchanged. As the war progressed and medical officers in the services recorded their observations, an increasing number of con-

tributions were sent to this journal. These papers and the reports on the use of new medicaments and new methods of treatment had often the unfortunate result of creating a long latent period before articles could be published. The dispute in the printing industry which began in September last accentuated all these troubles and difficulties.

When publication was resumed on December 1, 1945, it was quite impossible to make up the loss in the number of issues of the journal, and the issue of December 1 was designated "Numbers 12 to 22 inclusive". After two issues had appeared the strike originating in the mining and ironworkers' industry occurred. At first, since THE MEDICAL JOURNAL OF AUSTRALIA is registered as a weekly newspaper, publication was not affected, but before long the use of electricity and gas for all but daily newspapers was prohibited and publication ceased for a second time. Since work was resumed in the New Year the journals held up by the second interruption of publication have been published as quickly as possible and it is hoped that normal running will continue.

In spite of the large hiatus in the latter months of 1945, the volume for the second half of that year included 516 pages. When we remember that Volume II of 1943 contained 532 pages of reading matter with 25 pages of supplement, the second volume for 1945, affected by the large hiatus, does not appear so discreditable. Before the break last September the intention was to return to the use of ten-point and eight-point type in January, 1946. This change-over has been postponed and in a week or two some additional pages of reading matter will be published in each issue. In this way some of the accumulated material will appear. The return to larger type will be made as soon as conditions justify the change. In the meantime it is hoped that readers will continue their forbearance with the war-time type.

## Current Comment.

### THE RESULTS OF PREFRONTAL LEUCHOTOMY.

In May, 1944, a good deal of space was given in these columns to the subject of psycho-surgery. The development of the operation of prefrontal leuchotomy, or prefrontal lobotomy, was traced and special reference was made to work by W. Freeman and J. W. Watts. It was pointed out that, though in certain circumstances the patient's condition was improved and he was able as a result of the operation to lead a more or less equable life, the condition produced was final—"once one cuts, there is no return". The general conclusion stated was that the place of the method in the treatment of persons suffering from abnormal mental states had not been determined and that the greatest caution should be displayed in the selection of patients to be subjected to it. For these reasons it will be of interest to refer to two recent reports on the results of the operation.

The first report is based on 100 cases and is by F. Berliner, R. L. Beveridge, W. Mayer-Gross and J. N. P. Moore, who write from the Department of Clinical Research, Crichton, Dumfries.<sup>1</sup> At the time when these authors wrote, the first fifty of their one hundred patients had been operated on for at least fifteen months and it was concluded that the outcome in these cases was more or less settled. The second fifty had been operated on for

less than fifteen months, some of them for less than two months, and consequently the results could not be regarded as final. The series included 49 male and 51 female patients; the average age was 36 years and the range 19 to 53 years. The criterion for the selection of patients for operation was the presence of a clinical picture of "mental tension"—a concept which, we are told, is hard to define. "It may be thought of as a persistent emotional change sustaining and to some extent determining the clinical picture. Such a change is always of an unpleasant quality, invariably distressing, and sometimes intolerable to the patient. Its presence is shown by irritability, rage, fear, or other forms of emotional excitation; insomnia, and on the motor side, restlessness, aggressiveness, destructiveness, or impulsive behaviour." Of the 100 patients, 88 suffered from schizophrenia (54 were catatonics); the remainder included four patients with melancholia, five with severe obsessional states, two epileptics and a general paretic, who, after fever treatment, developed chronic hallucinations. Judged by ordinary prognostic standards, all the patients were hopeless chronic invalids. All of them had failed to respond to treatment other than operation. Of the patients with schizophrenia, 24 are described as "recovered", 13 as "much improved", and 23 as "improved". Of the four with melancholia, one fell into each of these three groups, and the fourth died. Of five with obsessional illness, four "recovered" and one was "much improved". These workers point out that it is unwise to evaluate the results of a new form of therapy without controls, but they regard their results as encouraging and add that they fully warrant the use of the operation in suitable cases. With this most readers will agree.

The second report comes from S. D. Porteus and R. De M. Kepner, of the Psychological Clinic of the University of Hawaii. It deals with twenty patients who have been treated at the Territorial Hospital for Mental Disorders, Hawaii, where Porteus is the psychological consultant and Kepner the clinical director. The operations were performed by R. B. Cloward, consultant neurosurgeon of the institution. The report is a monograph of 115 pages. (It has also been published in *Genetic Psychology Monographs*, Volume XXIX, 1944, page 3.) The detailed histories of the twenty cases are so full of interest that they will be read, or should be read, by all psychiatrists interested in the subject. Porteus and Kepner examined their subjects by psychological tests; they used a modification of the Binet test and also the Porteus maze test. In some instances the results of the tests did not favour operation, but since there were no established criteria for the selection of patients, operation was carried out in spite of the findings. Eleven of the twenty patients studied manifested some degree of improvement; two improved to such an extent that they were able to be released from hospital. In nine of the eleven cases the psychological recommendation "on the basis of present experience" would have been favourable to operation. In seven of the nine cases in which no improvement occurred, the recommendation would have been adverse. This means that in 16 of the 20 cases the prognosis based on various psychological considerations was justified. Porteus and Kepner think that with more experience the percentage of accurate prognoses would increase. They state the following guiding principles in selection.

1. The elimination from the list of prospective lobotomy patients of the mentally defective on the ground that the operation cannot put into the brain what was never there.
2. The elimination of the mentally deteriorated on the grounds that the operation cannot restore what is already lost.
3. A reasonably high maze test record is a favorable sign, the reason being that, if planning capacity is diminished, as it almost certainly will be after operation, the individual will retain enough to enable him to function satisfactorily in community life.
4. One conclusion, admittedly somewhat tentative, is that hebephrenia should be considered a contraindication for operation. This feature of behavior is probably to be interpreted as an emotional retrogression, similar in its unfavorable implication to mental deterioration.

<sup>1</sup> *The Lancet*, September 15, 1945.



5. Theoretically, certain catatonic types, because of the strong tendency to stereotyped reactions in post-lobotomy behavior, would also not be considered good prospects.

6. Another presumption is that manic-depressives exhibiting cyclical changes in mood are not good risks. The operation cannot be expected to bring about opposite results in the same patient.

7. One commonly dependable post-operative index of the surgical adequacy of the operation is decline in maze test ability. The results of several reoperations will show whether this indication is completely reliable.

Porteus and Kepner have found that the general diagnostic label is not of great assistance in the selection of patients for operation. Their group of patients does not represent fairly the types for whom lobotomy is recommended and they point out that success has been attained in various types of psychosis. One point of considerable interest is that among the criminal insane operated on were three individuals whose collective convictions included three killings and five stabbings. The condition of all three was improved and one was discharged as being no longer a menace to the community.

It would be possible to discuss both these reports in much greater detail, but for our present purpose this is not necessary. Two points should be mentioned. The first is that apparently social adjustment after this operation has been performed may take a considerable time. Freeman and Watts, who are probably more entitled than any other workers to express an opinion, have described the process of adjustment as slow and as extending even into the second year after operation, or longer than that. The second point is that sometimes a second operation may be needed if the first has not done what is to be expected. This is an aspect that will probably be discussed by future workers. In the meantime all who are interested in the subject will agree with Porteus and Kepner that the application of the procedure should not become widespread until careful and continued psychological and psychiatric studies of its effects have been undertaken. There is something to be said for their idea that a neuropsychological institute should be established where such investigations could be carried out, though others will hold that a special institution is not required.

#### POST-WAR GERMANY: A PSYCHIATRIC PROBLEM.

In April, May and June, 1944, there took place a conference at the College of Physicians and Surgeons, Columbia University, New York City, on "Germany After the War". The participants in this discussion represented a wide selection from experts in anthropology, sociology, psychology, psychiatry, education, economic and political science and other studies. The conclusions reached were presented and individual sections discussed at the annual meeting this year of the New York Regional Division of the American Orthopsychiatric Association. An excellent account of the deliberations has been published.<sup>1</sup> The analyses given and the recommendations submitted make rather grim reading, for the seriousness of the situation in the Germany of today and the Germany of tomorrow is disclosed with convincing realism of detail. There can be no question that Americans have been profoundly shocked at the change which Germany underwent between the two world wars. For many years Germans had been excellent colonists in the United States of America, industrious and intelligent and soon imbibing the American spirit; furthermore, American intellectuals sought inspiration from German universities and many looked upon Germany as their spiritual home. It is true that Germany resorted to harsh measures in World War I, but these were of military origin and purpose and had what excuse military operations can claim. Then came the

promulgation of Nazi doctrine and the horrified Americans, as well as the citizens of the British Empire, discovered in the German people an insulting assumption of racial superiority which did not hesitate at endeavouring to exterminate a whole people, a contempt for democracy, a proclamation of a new order to supersede all previous orders, and the resort to a technique of lies, subterfuges and world-wide spying and infiltration. The conference emphasized strongly the fact that the measures to be taken with post-war Germany must not be confined to the military, political and economic spheres, for most important of all are a psychiatric analysis and based upon this a treatment directed towards an abnormal and deeply entrenched psychology. A whole generation of Germans has been poisoned in moral fibre and in intellectual freedom by cunning propaganda lavished on them during their impressionable years. The boys of the Hitler Youth Movement, who were fourteen to eighteen years of age in 1933, when the toxicity had reached full potency, are now twenty-six to thirty years of age, and it is with these perverted adults that the Allies must deal. In another article in the same journal, "Children under the Nazi System", there is a cold, unbiased, but none the less terrible description of the devilish devices used to win over boys to the doctrine that the master race must be on top and it mattered not by what methods this was attained. Youngsters were encouraged to sneer at old-fashioned parents and to regard the home as of no account; girls were for pleasure and procreation, while marriage was "not a biological necessity". In the main report some concepts are given which Germans tenaciously hold and which have been causative in the headlong rush into degeneracy. Chief amongst these are the doctrine of German superiority, the right of Germans to dominate all other groups which must be regarded as enemies, the apotheosis of the military cult and the application of military methods to civil life, and particularly to education. Each of these must be destroyed beyond recovery and the process may take a long time. We are warned that the reaction of English-speaking democracies to any particular form of treatment must not be taken as indicating what the Germans will do in a similar position. The British and Americans would, for example, accept a remission of a penalty with gratitude; the Germans with contempt, as it would in their view imply stupidity or weakness in the victor. In fact, a strong plea is made for "putting the boot in", to use a local expression, in dealing with the conquered Teutons. An illustration which might have been given in this discussion is that after Versailles it was hoped to transform the German army into something different and yet retain the former corps of officers. What happened was that a new German army arose more brutal than the old.<sup>2</sup> If democracy is to be saved, then the German military system must be destroyed to its minutest rootlet. Education must be forcibly overhauled and reformed and freedom should be restored to Press, radio, stage, film and Church. The imposition of a superficial form of democratic government would be of little service so long as the poison remains in the soul of the people. To rebuild German character will be a long business; it may be impossible, but it must be tried. If it fails, then the means of doing harm must be taken away from the nation collectively and individually. The report makes it clear that the problem of post-war Germany is essentially a problem in mental pathology; the country must be shielded from the libido of desperate adolescents whose degenerate actions should be kept under with a strong hand. The reading of these measured analyses and recommendations gives the feeling that there is little hope for betterment in German manhood today, for the poison cannot be expelled or neutralized by an arsenical or sulphonamide drug, nor can the devils be exorcised by kindly treatment. It is to be hoped that the report of these American deliberations will be placed in the hands of the Allied statesmen in whose responsibility the control of Germany now rests.

<sup>1</sup> American Journal of Orthopsychiatry, July, 1945.

<sup>2</sup> The Times Literary Supplement, August 18, 1945, page 387.

## Abstracts from Medical Literature.

### PHYSIOLOGY.

#### The Rate of Carbon Monoxide Uptake by Man.

W. H. FORBES, F. SARGENT AND F. J. W. ROUGHTON (*The American Journal of Physiology*, April, 1945) present new data for the rate of carbon monoxide uptake by normal men at sea level, when exposed to air containing various percentages of carbon monoxide (0.01 to 2.0) for various times. The subjects were at rest, engaged in light activity, light work or hard work. A composite chart is given for calculating the average individual increase in percentage of carboxyhemoglobin in the blood with time, at varying carbon monoxide pressure and varying ventilation rate. Particular individuals may, however, vary consistently by as much as  $\pm 20\%$  from the data in the chart, which may, therefore, in practical cases, often be replaced by much simpler approximate equations given in the text. Variations in the ratio of tidal air to dead space, and in the value of the diffusion constant of the lungs, appear to be responsible for the differences between individuals in the rate of carbon monoxide uptake. The observed rates of carbon monoxide uptake are lower than the average rates of most previous observers: the difference is attributed partly to more accurate estimation of carboxyhemoglobin (by the Scholander-Roughton technique) and partly to adequate allowance for the blank carbon monoxide already present in the blood before the exposure. Lowering of the total barometric pressure (down to 140 millimetres of mercury) is without effect on the rate of carbon monoxide uptake, provided the partial pressure of carbon monoxide in the trachea is kept constant and correction is made for any increase in ventilation rate due to hypoxia. Increasing the oxygen from 20% to 98% at sea level decreases the rate of carbon monoxide uptake: the effect is more pronounced in hard work than at rest. This decrease occurs because the rate of reaction of carbon monoxide with hemoglobin is inversely proportional to the oxygen pressure.

#### The Dehydrating Effect of Continuously Administered Water.

A. V. WOLF (*The American Journal of Physiology*, April, 1945) recalls that other authors have shown that the quantity of water lost in diuresis due to water excess may be greater than the quantity taken in. The author studied this dehydrating effect in man. Ten young subjects were taken and a fixed amount of water varying from 20 to 200 millilitres was drunk every ten minutes. The intake of water was continued for periods up to seven hours. A steady state of water intake under the conditions of these experiments on man results in a total output of fluid larger than the intake, and if continued, leads to the production of negative water loads. The urinary output alone was 8% greater than the

intake rate. The ratio of rate of chloride excretion to the rate of excess water excretion is equal to the normal plasma concentration in the steady state, and the equation of steady state is calculated. The threshold of appearance and the threshold of retention are defined and are illustrated for chloride. In renal excretion, the regulation of concentration of plasma chloride takes precedence over the regulation of body volume, when water is drunk.

#### Use of Cholinesterase in Shock.

R. J. SCHACHTER (*The American Journal of Physiology*, April, 1945) reports that surgical shock was produced in 66 anesthetized dogs by excessive hemorrhage or manipulation of the intestines. When permanent shock levels of blood pressure were demonstrated to be present, treatment consisting of restoration of blood volume or of injection of cholinesterase was attempted. The dogs in hemorrhage shock responded well to beef plasma, administered in appropriate volumes, by recovering from shock. The dogs in traumatic shock were benefited by plasma only temporarily. When the dogs in traumatic shock were given intravenous injections of cholinesterase, the blood pressure nearly always (16 out of 18 dogs) returned to normal and remained there for the duration of the experiment.

#### Absorption, Distribution and Excretion of Thiourea.

R. H. WILLIAMS AND G. A. KAY (*The American Journal of Physiology*, May, 1945) state that in addition to the recently demonstrated antithyroidal action of thiourea, the use of this substance in the measurement of renal function and in the estimation of the total body water has been considered. They have modified the methods to allow determination of thiourea in any of the fluids and tissues of the body. They also state that thiourea is rapidly absorbed from the gastro-intestinal tract and is rapidly distributed throughout the tissues and fluids of the body; its concentration in the tissues varies widely. The distribution of thiourea correlates poorly with the water content of body fluids and tissues; the apparent volume of distribution far exceeds the actual content of body water. The substance is broken down in the body in a rapid and inconstant manner. No thiourea is excreted in the stools, but it appears in the urine within thirty minutes of ingestion. None of the substance is usually found in the urine forty-eight hours after cessation of therapy. In patients with nephritis there is a distinct impairment in the excretion of thiourea.

#### The Effect of Arsenite on the Respiration of Rat Tissues.

H. W. ELLIOTT AND E. R. NORRIS (*The American Journal of Physiology*, May, 1945) state that rats given 25 milligrammes of arsenic trioxide as a solution of sodium arsenite per kilogram body weight may die in fifteen minutes with the characteristic symptoms. Animals on lower but still lethal doses may develop the same syndrome in the course of a twenty-four hour period. Rats may be adapted to arsenic trioxide

by the injection of sublethal doses over a long period of time. While normal rats show a fall in temperature when injected with solutions of sodium arsenite, adapted rats show much less or no drop in body temperature. The hypothermia follows immediately after the injection of arsenic and may be due to a direct effect on the temperature-regulating centre in the hypothalamus, to some action on the vasodilator centres, or to a lowering of the basal metabolic rate which might conceivably be due to reduction of the respiratory rate of the individual body tissues. With the object of determining the cause of the hypothermia, studies were made of the effects of arsenic trioxide on cerebral cortex, diaphragm, kidney, cortex and liver. By tissue respiration studies, action-concentration curves of arsenic trioxide have been prepared for cerebral cortex, diaphragm, kidney cortex and liver in the albino rat. Fatal doses of arsenic trioxide administered subcutaneously *in vivo* have no effect on cerebral cortex respiration, cause reduction of diaphragm and kidney respiration, and induce stimulation of liver respiration. Fatal doses of arsenic trioxide administered intraperitoneally *in vivo* have no effect on cerebral cortex respiration, and cause reduction of diaphragm, kidney cortex and liver respiration. The absence of effect on the cerebral cortex respiration while the respiration of the muscle tissue of the diaphragm is reduced would suggest that the hypothermia of arsenic poisoning is influenced more by a decreased rate of energy metabolism of the individual tissues than by a direct effect on the temperature-regulating centre in the central nervous system.

#### Tolerance to Arsenic Trioxide in the Albino Rat.

E. R. NORRIS AND H. W. ELLIOTT (*The American Journal of Physiology*, May, 1945) discuss some of the work which has been done concerning tolerance to arsenic. There seems no doubt that the arsenic eater may ingest quantities of arsenic trioxide which would be poisonous to the normal individual. However, the ability of the individual or laboratory animal to acquire a true tolerance to arsenic trioxide either as a solid or in solution as sodium arsenite has been questioned by several investigators. The general belief was that no tolerance could be developed to arsenic in solution, but that with solid arsenic the tolerance is due to diminished absorption. In the course of studies made by the authors on the detoxification of arsenic by rats it was desired to administer the largest doses that could be safely given. Solutions of sodium arsenite were injected intraperitoneally. When a group of rats had been injected with sublethal doses for three weeks it was found that the dose could be increased to a level which invariably killed normal animals without producing toxic effects. Attention was then given to this aspect of the question, and the authors showed that rats acquire a true systemic tolerance to arsenic trioxide in solution, injected intraperitoneally as sodium arsenite. The toxicity of a dosage of arsenic trioxide and the progress of adaptation have been demonstrated by studying the hypothermia after injection. The

tolerance to injected arsenic trioxide was shown not to be due to decreased rate of absorption from the body cavity.

## BIOCHEMISTRY.

### Alloxan.

S. BANERJEE (*The Journal of Biological Chemistry*, May, 1945) has reported on the hypoglycaemic action of alloxan. Hypoglycaemic convulsions were not observed when alloxan (200 milligrammes per kilogram) was injected intravenously into three partially pancreatectomized rabbits. All three animals survived and developed hyperglycaemia and glycosuria on the following day. Three normal rabbits with the pancreas intact died of hypoglycaemic convulsions within varying periods after the intravenous injection of alloxan. The alloxan hypoglycaemia is suggested to be due to the release of preformed insulin from the necrosed islets and not to stimulation of the islet tissue.

### Vitamin E.

D. W. WOOLLEY (*The Journal of Biological Chemistry*, June, 1945) has studied some biological effects produced by the quinone of  $\alpha$ -tocopherol. Administration of  $dl$ - $\alpha$ -tocopherol quinone to pregnant mice causes hemorrhage in the reproductive system and resorptive termination of pregnancy during the last week of gestation. Similar amounts of the compound were without detectable effect on non-pregnant mice. No permanent damage was done to the ability to reproduce. The action of the quinone was not prevented by large doses of  $\alpha$ -tocopherol acetate, but was negated by small amounts of 2-methyl-1, 4-naphthoquinone (vitamin K). The quinone was viewed as a structural analogue of both vitamin E and vitamin K. 3, 3'-methylenebis (4-hydroxycoumarin), which caused signs (reversible by vitamin K) similar to those seen in vitamin K deficiency, did not produce resorption or vaginal hemorrhage in pregnant mice. The quinone was much more effective when given intraperitoneally than when given orally.

### Lipides.

W. A. GORTNER (*The Journal of Biological Chemistry*, June, 1945) has investigated the lipid fractions of 438 fetuses, representing 66 litters and covering 70% of the gestation period of the pig. The water content of the pig fetus exhibits two rapid falls during growth, a phenomenon previously correlated with changes in the foetal kidneys. The total lipid and lipid to protein ratio remain constant for a large part of the embryonic growth period. Evidence is presented that a considerable portion of the non-phospholipid fatty acids, often considered "neutral fat", is actually present in unesterified (free) form. On a dry weight basis, the phospholipid content is at a maximum in the very young fetus, which has twice as much of this lipid as does the fetus at term. The phospholipid fatty acids, in common with the other acid fractions, have an average iodine number of 82. The unsaponifiable lipides in the dry solids

progressively decrease in their percentage content during embryonic growth, the total and free cholesterol fractions roughly paralleling this fall. At no time is there any notable tendency for cholesterol to appear in ester form. The foetal glycerides gradually increase, beginning about the middle of the gestation period, but even at term they account for only a minor part of the total lipid substance. Considerable differences exist in the development of the lipides in the foetal pig in comparison with the foetal rabbit.

### Galactose.

D. STETTEN (*The Journal of Biological Chemistry*, June, 1945) has studied the glycogen turnover in the liver and carcass of rats fed with galactose. When rats were fed with galactose instead of glucose as the sole dietary sugar, less glycogen was recovered from their tissues, especially from their livers. The rate at which deuterium was incorporated into this glycogen from deuterium oxide in the body fluid was at least as rapid as when glucose was fed. From the maximal isotope concentrations in the glycogen it could be shown that the animal can convert galactose into glycogen without labilization of all of the carbon-bound hydrogen. The galactose excreted in the urine when galactose is fed to male rats receiving deuterium oxide is essentially free of deuterium. This finding provides a confirmation of the non-exchangeable nature of the carbon-bound hydrogen of hexose.

### Choline.

R. W. LUECKE AND P. B. PEARSON (*The Journal of Biological Chemistry*, May, 1945) have studied the effect of the ingestion of excessive quantities of choline on the amount in tissues and urine. The ingestion of forty grammes of choline chloride daily for a period of six days did not increase either the free or total choline content of the liver, kidney or plasma. The choline recovered in the urine on any single day during choline feeding ranged from 0.7% to 2.5% of the choline ingested by sheep. The amount excreted in the urine of dogs ingesting five grammes daily was approximately 0.5% of the amount ingested. The ingestion of choline is accompanied by an increase in urinary nitrogen. The increment in urinary nitrogen is virtually equivalent to the choline nitrogen ingested. Betaine hydrochloride administered *per os* is not excreted in urine as choline or betaine.

### Wound Healing.

H. E. PAUL *et alii* (*Archives of Biochemistry*, June, 1945) have found that the thiamin content of repair tissue in skin wounds at the stage of rapid healing is approximately double that of normal skin. The average thiamin content of normal rat skin has been determined to be 0.57 microgramme per gramme in animals in the latter half of life.

### Biotin.

C. KENNEDY AND L. PALMER (*Archives of Biochemistry*, June, 1945) have produced evidence that biotin is one of the factors needed for successful gestation and the birth of viable young in

the rat and is probably a necessary factor in lactation; however, as folic acid was not included in the ration, the effect of biotin on lactation is not positively known.

### Body Composition.

H. H. MITCHELL *et alii* (*The Journal of Biological Chemistry*, May, 1945) have studied the chemical composition of the adult human body, thirty-five years of age, with reference to moisture, ether extract, protein ( $N \times 6.25$ ), total ash, calcium, phosphorus and gross energy. Individual analyses of the skeleton, musculature, skin and many visceral organs are reported. The data from this material have been considered in connexion with the requirements of calcium for growth on the assumption that the integration of calcium accretions during the growing period will equal the calcium content of the adult organism.

### Vitamins in Muscle.

E. E. RICE *et alii* (*Archives of Biochemistry*, June, 1945) have investigated the distribution and comparative content of certain B-complex vitamins in pork muscular tissues. The thiamin, riboflavin, niacin and pantothenic acid contents of 24 pork muscles have been determined for each of several animals. It has been shown that the vitamin content of the muscles in a single animal vary as much as 200% to 300%. Muscles which are high in a vitamin in one pig tend to be high in other animals of this species. Muscles containing relatively much thiamin usually contain high levels of niacin, but relatively low levels of riboflavin and pantothenic acid. Although there are indications that the activity or function of the muscle may be responsible for the variations in vitamin content, no definite conclusions to this effect can be drawn on the basis of the present data.

### Acetic Acid.

The formation of acetic acid in the rat has been studied quantitatively by K. Bloch and D. Rittenberg (*The Journal of Biological Chemistry*, June, 1945). The acetylation of foreign amines by acetic acid was studied. By employing acetate labelled with  $C^{14}$  as well as deuterium, it has been shown that no loss of deuterium due to exchange reactions occurs in the acetylation of reaction. Acetic acid is an effective acetylating agent for para-aminobenzoic acid, *d*- and *l*-phenylamino-butyric acids and sulphanilamide. Evidence is presented to show that acetic acid is the only acetylating agent for the aromatic amines, sulphanilamide and para-aminobenzoic acid. Acetic acid is the major source of acetyl groups in the acetylation of phenylamino-butyric acid, which, however, can also be acetylated by a mechanism probably involving pyruvic acid. From the dilution of the acetate fed it is calculated that 15 to 20 millimoles of acetic acid are formed daily per 100 grammes of rat tissue. It is suggested that the major part of this acetate arises from the oxidation of fatty acids. It is estimated that at least half the carbon atoms of cholesterol are derived from acetate.



## British Medical Association News.

### ANNUAL MEETING.

THE annual meeting of the Queensland Branch of the British Medical Association was held at B.M.A. House, Wickham Terrace, Brisbane, on December 14, 1945, Dr. H. W. Horn, the President, in the chair.

### ANNUAL REPORT OF COUNCIL.

The annual report of the Council, which had previously been circulated among members, was taken as read on the motion of Dr. C. C. Minty, seconded by Dr. D. Gifford Croll, and adopted on the motion of Dr. C. C. Minty, seconded by Dr. Alex Murphy. The annual report is as follows.

The Council has pleasure in presenting the following report of the work of the Branch for the year ending November 15, 1945.

### Membership.

The membership of the Branch is 641 and 3 complimentary members, as against 623 last year, making a gain of 18. Forty-five honorary associate members were elected during the year.

The gains were: new members, 43; transferred from other Branches, 2; members reinstated, 1.

The losses were: members transferred to other Branches, 13; deceased, 12; resignations, 3.

The following members of the Branch completed fifty years of membership of the British Medical Association at the end of the year 1944: Dr. W. Wallis Hoare, Dr. J. A. Goldsmid.

There is a total of 146 members engaged on full-time duty with His Majesty's Forces.

Honours have been conferred by His Majesty the King on the following members for services rendered during the war: O.B.E., Lieutenant-Colonel Arnold W. Robertson; Military Cross, Captain H. Glynn Connolly. Mentioned in Despatches: Lieutenant-Colonel P. W. Hopkins, Lieutenant-Colonel W. E. E. Langford, Lieutenant-Colonel L. McD. Outridge, Lieutenant-Colonel J. H. Thorpe, Lieutenant-Colonel L. G. Hill, Lieutenant-Colonel R. G. Quinn. A letter of congratulation was sent to these members.

We are glad to extend a warm welcome to the following members who have been prisoners of war: Major B. L. W. Clarke, Major Clive Uhr, Captain C. R. R. Huxtable, M.C., Captain C. R. Boyce, prisoners of war in Japanese hands, and Captain L. Pelham Sapsford, who was a prisoner of war in Germany.

### Obituary.

The Branch has sustained a loss by death of the following members: Dr. Clive L. Paine, Dr. A. C. F. Halford, Dr. R. Graham Brown, Dr. R. A. McWilliam Robinson, Dr. W. A. Fraser, Dr. Alan R. East, Dr. J. E. Overstead, Dr. St. A. W. L. McDowall, Dr. F. W. Harlin, Dr. Eric Melke.

It is with regret that we record the death of Sir David Hardie, M.D., which has just occurred. Sir David Hardie had been a member of the Association for over fifty years and he was a past president of the Branch.

### Roll of Honour.

Captain Benjamin Hooper died on active service. Captain D. G. Picone and Captain P. M. Davidson died whilst prisoners of war in Japanese hands.

### Meetings.

In addition to the annual meeting, twelve meetings of the Branch were held, two of which were special meetings, one being held to give members an opportunity of hearing the views of the Federal Council on the *Pharmaceutical Benefits Act*, given by the General Secretary, Dr. J. G. Hunter, and the other an address by Dr. C. I. McLaren.

The average attendance was forty-one.

### Council.

Twenty-one meetings were held. The record of attendances of the Council is as follows:

Dr. H. W. Horn (President) .. . . .	21
Dr. J. G. Wagner (President-Elect and Honorary Treasurer) .. . . .	20
Dr. L. P. Winterbotham (Past President) .. . . .	14
Dr. Norman Sherwood (Honorary Secretary) .. . . .	20

Dr. C. C. Minty (Chairman of Committees) .. . . .	20
Dr. J. G. Avery (Honorary Secretary of Committees) .. . . .	16
Dr. Felix Arden (Councillor) .. . . .	16
Dr. E. W. Casey (Councillor) .. . . .	18
Dr. R. B. Charlton (Councillor) .. . . .	13
Dr. D. Gifford Croll (Councillor) .. . . .	20
Dr. Milton Geaney (Councillor) .. . . .	18
Dr. L. T. Jobbins (Councillor) .. . . .	13
Dr. Alan E. Lee (Councillor and Federal Council representative) .. . . .	20
Dr. F. W. R. Lukin (Councillor) .. . . .	14
Dr. J. G. Morris (Councillor) .. . . .	16
Dr. Mervyn S. Patterson (Councillor) .. . . .	15
Dr. T. A. Price (Councillor and Federal Council representative) .. . . .	8
Dr. W. H. Steel (Councillor) .. . . .	16

### Scientific.

*February*.—Clinical meeting in conjunction with the Mater Misericordiae Public Hospital Clinical Society.

*March*.—Dr. L. J. J. Nye: "The Management of Duodenal Ulcer."

*April*.—Dr. P. A. Earnshaw: "The Problem of the Under-weight Child."

*May*.—Discussion of the profession's attitude to the *Pharmaceutical Benefits Act*.

*June*.—Brigadier N. Hamilton Fairley: "Tropical Medical Research in the Australian Army" (Joseph Bancroft Memorial Lecture).

*July*.—Dr. Neville G. Sutton: "A Surgeon Visits the U.S.A."

*July (Special)*.—A talk by Dr. J. G. Hunter, General Secretary of the Federal Council, on the *Pharmaceutical Benefits Act*.

*August*.—Symposium on backache. The opening speakers were Dr. A. V. Meehan, Dr. Ellis Murphy and Dr. Alan E. Lee.

*August (Special)*.—Dr. C. I. McLaren: "A Medical Psychologist in the Far East."

*September*.—Dr. S. Julius: "The History of Medicine in Soviet Russia" (Jackson Lecture).

*October*.—Major John F. Williams: "The Working of a Child Guidance Clinic."

*November*.—Clinical meeting in conjunction with the Brisbane General Hospital Clinical Society.

### Office-Bearers and Councillors.

Dr. J. G. Wagner was elected President-Elect for the ensuing year and Dr. Norman Sherwood was elected Honorary Secretary.

The following office-bearers were elected by the Council:

*Honorary Treasurer*: Dr. J. G. Wagner.

*Chairman of Committees*: Dr. C. C. Minty.

*Honorary Secretary of Committees*: Dr. J. G. Avery.

*Honorary Librarian*: Dr. Neville G. Sutton.

*Assistant Honorary Librarian*: Dr. Konrad Hirschfeld.

Dr. Mervyn Patterson, Dr. J. G. Avery, Dr. Robin Charlton and Dr. L. T. Jobbins are not seeking reelection for 1946, and the Council wishes to record its appreciation of the services rendered by them.

### Ethics Committee.

At the annual meeting of the Branch held on December 13, 1944, the following were elected members of the Ethics Committee: Dr. Alex. Marks, C.B.E., D.S.O., V.D., Dr. G. P. Dixon, C.B.E., V.D., Surgeon Commander Gavin Cameron, Dr. M. Graham Sutton, Dr. L. J. J. Nye. The *ex-officio* members of the Ethics Committee consist of the President, President-Elect, the Honorary Treasurer and the Honorary Secretary for the time being in office.

Two meetings of the committee were held to deal with a complaint received regarding a member of the Branch.

### Library.

During the year seventy-eight books were borrowed from the library by thirty-three members.

Arrangements have been made to receive the reports of the Medical Research Council of England as they are published.

The only addition to the library this year is "Pre-School Centres of Australia", by J. H. L. Cumpston and Christine Heinig.

<sup>1</sup> Leave of absence.

### Representation.

The Branch was represented as follows during the year:  
*Council of the British Medical Association:* Professor R. J. A. Berry.

*Federal Council of the British Medical Association in Australia:* Dr. T. A. Price and Dr. Alan E. Lee.

*Federal Council Contract Practice Committee:* Dr. L. P. Winterbotham.

*Australasian Medical Publishing Company, Limited:* Dr. D. Gifford Croll, director; Dr. T. A. Price and Dr. Alan E. Lee, members.

*Medical Officers' Relief Fund (Federal):* Queensland Committee, Dr. D. Gifford Croll, Dr. G. P. Dixon, Dr. W. H. Steel.

*Medical Assessment Tribunal:* Dr. A. H. Marks.

*Queensland Medical Board:* Dr. D. Gifford Croll, Dr. J. G. Wagner, Dr. Felix Arden.

*Queensland Post-Graduate Medical Education Committee:* Dr. S. F. McDonald and Dr. Alan E. Lee.

*Queensland Medical Coordination Committee:* Dr. F. W. R. Lukin.

*Queensland Radium Institute:* Dr. Alan E. Lee.

*Queensland Nutrition Council:* Dr. P. A. Earnshaw, Dr. Noel M. Gutteridge.

*Queensland Bush Nursing Association:* Dr. L. Bedford Elwell.

*Queensland Council of Social Agencies, Board of Studies:* Dr. C. C. Minty.

*Flying Doctor Service of Australia:* Dr. Harold Crawford.

*Red Cross Blood Transfusion Service Committee:* Dr. Milton Geaney.

*Red Cross Society Appeal Committee:* Dr. L. J. J. Nye.

*The Surf Life Saving Association of Australia, Queensland State Centre:* Dr. F. W. R. Lukin.

*Physical Fitness Association of Queensland:* Dr. E. S. Meyer and Dr. Harold Crawford.

The Editor of THE MEDICAL JOURNAL OF AUSTRALIA was represented by Dr. Felix Arden.

### War Emergency Organization.

#### Rehabilitation of Members of the Armed Services.

The special subcommittee of the Branch appointed to deal with this important matter consists of the following members: Dr. J. G. Wagner, Dr. F. W. R. Lukin, Dr. C. C. Minty, Dr. Ellis Murphy, Dr. T. V. Stubbs Brown, and the *ex-officio* members of the Council.

The Council has been watchful of the interests of members returning from the services in regard to the provision of facilities for post-graduate study and hospital experience, and also in placement in civilian practice. Such members have been urged to seek the advice of the Rehabilitation Subcommittee, and everything possible will be done to assist them in all their problems.

Dr. Ellis Murphy has been appointed to act as the representative of the Queensland Post-Graduate Medical Education Committee on the Rehabilitation Subcommittee of the Branch, and Dr. Stubbs Brown is the nominee of the Society of Returned Medical Officers of Queensland.

In June last the President attended a meeting of representatives of the Universities Commission with the local Advisory Committee to that commission, at which details regarding rehabilitation of medical officers were discussed, and the general principles of medical education to be permitted and paid for by the Universities Commission were defined.

The question of facilities for post-graduate work outside Australia being made available to medical officers discharged from the armed forces, on terms to be arranged, had been under discussion by the Federal Council of the British Medical Association. The Branch Council has expressed itself in favour of the suggestion.

The Branch Council has also endorsed a recommendation made to the Federal Council that there should be open competition between the medical agencies regarding ex-service practitioners who are seeking avenues of practice.

#### Queensland Medical Coordination Committee.

Dr. F. W. R. Lukin was again reappointed representative of the Branch on the Queensland Medical Coordination Committee for the year 1945.

The Branch Council has endorsed the opinion of the Federal Council that the present set-up of State Medical Coordination Committees under Commonwealth control should continue for the time being.

### Repatriation Commission: Medical Benefits for Dependents of Deceased Soldiers.

An agreement between the Repatriation Commission and the Federal Council has now been reached, after having been under discussion for several years. The terms of the agreement should be satisfactory to the medical profession.

Payment for service to dependents of deceased soldiers will be on a sliding scale determined by the nominal wage index each year, with a differentiation for metropolitan and extra-metropolitan areas. For the purposes of the agreement the metropolitan area has been extended to include Toowoomba, Maryborough, Rockhampton and Ipswich.

It is understood that beneficiaries may receive treatment directly by agreement with the Repatriation Department without the intermediary of a lodge. Also that benefits must be taken up within six months without submitting to medical examination. After the expiration of that time a medical examination is necessary.

#### Queensland Medical War Benefit Fund.

The Queensland Medical War Benefit Fund was renewed for a further period of twelve months, which expires on April 30, 1946.

The future of the fund is undecided at present.

#### Federal Medical War Relief Fund.

It is proposed by the Federal Council to establish a Federal Medical War Relief Fund to assist members of the medical profession who have been disabled, and the dependents of those who have died as a result of enemy action or of sickness contracted whilst serving in the armed forces. Also to issue loans, with or without interest, to medical men, who, as a result of enemy action, may require temporary financial assistance.

The fund is to be established by donations from members of the profession in Australia, and an effort is to be made in each State to secure as large initial donations as possible.

The control of the fund will be in the hands of trustees appointed by the Federal Council, and a local committee of management has been appointed in each State.

It was decided by the Branch Council to appoint the same personnel as the trustees of the Queensland Medical War Benefit Fund as the local committee of management for the Federal Medical War Relief Fund in this State, namely, Dr. J. G. Wagner, Dr. F. W. R. Lukin, Dr. J. G. Avery, Dr. Milton Geaney and Dr. J. V. Duhig.

An appeal is to be launched shortly for donations to the fund.

#### Rationing.

Although the war has ended, the supply of certain foods necessary for special classes of the community is still a matter for medical certification, but the position has eased somewhat in this regard.

#### Liquid Fuel Supplies.

The subcommittee appointed to deal with petrol requirements of metropolitan members has continued its useful work with the able assistance of Mr. F. K. Davis. Dr. L. P. Winterbotham is chairman, and the other members are Dr. Alec Paterson, Dr. A. G. Anderson and Dr. J. G. Avery.

#### Motor-Car Tires and Accessories.

Members have also been assisted by Mr. F. K. Davis in obtaining necessary new tires and retreads *et cetera*, in order to maintain efficient transport to enable them to carry out their professional duties.

#### Linen for Doctors' Surgeries.

Through a subcommittee consisting of Dr. L. P. Winterbotham, Dr. J. G. Avery and Dr. Alec Paterson, members are enabled to obtain adequate supplies and replenishments of linen for their surgeries; returned service medical officers particularly appreciate the assistance given in this matter.

#### Monthly Newsletter.

The monthly newsletter, which was originally sent only to members in the forces to keep them in touch with current events, is now circulated to all members of the Branch, although it does not necessarily represent the views of the Council.

The members of the Publicity Committee responsible for the compilation of the newsletters are to be congratulated upon their excellent work and variety of expression.

### Supply of Artificial Limbs.

Attention was drawn to the serious position existing in Queensland in connexion with the supply of artificial limbs. It is almost impossible for a patient with an amputation to obtain an artificial limb. The matter was referred to the Chairman of the Medical Equipment Control Committee, who promised that all possible steps would be taken to remedy the position.

### Licences under Alien Doctors (National Security) Regulations.

At the meeting of the Federal Council held in Melbourne on October 15, 1945, it was decided to recommend to the Branches that, unless their country of origin provides registration of graduates of the State concerned upon conditions no less onerous than those existing in such State, the registration of alien doctors whose licences will have expired be opposed.

### Organization Subcommittee.

**Personnel:** Dr. Alan E. Lee, Dr. W. H. Steel, Dr. Robin Charlton, Dr. Felix Arden, Dr. E. W. Casey, Dr. J. G. Morris, Dr. L. T. Jobbins and the *ex-officio* members of the Council.

This subcommittee is vested with power to act in matters which came before it, provided they are not questions of policy or of a controversial nature.

During the year 24 meetings were held, and recommendations were made to the Council on matters which were not dealt with directly by the subcommittee.

The following is a record of some of the important subjects considered by the subcommittee.

**Workers' Compensation Schedule of Fees.**—A schedule of medical fees for attendance on injured workers, as agreed between the Council of the Branch and the Insurance Commissioner, and endorsed by the State Treasurer, has been published and circulated to the profession. This schedule came into operation as from April 1, 1945, and appears to be working satisfactorily.

The fees are applicable to treatment of injured workers in their home, at the doctor's surgery or in a private hospital. In ordinary cases of injury to workers the Insurance Commissioner is responsible for payment of medical fees not exceeding £25, but no responsibility is accepted by him for private hospital fees, except in special circumstances where no public hospital accommodation is available, or for injured workers who are covered by a lodge agreement, or other contributory scheme. The sympathetic cooperation of the Insurance Commissioner in all matters under dispute must be fully acknowledged.

**Unemployment and Sickness Benefits Act.**—Regarding the question of medical certificates required under the provision of this act, members have been advised, where information of a confidential nature has to be disclosed, to give the certificate to the patient concerned or obtain the written consent of the patient to furnish the information to the Social Service Department.

**Medical Certificates.**—It is a matter of congratulation to the profession that during the year there has been very little need for the functioning of the subcommittee appointed to deal with such matters.

The members of the subcommittee are Dr. H. W. Horn and Dr. L. P. Winterbotham.

**General Health Policy of the Branch.**—In view of the importance of the health of the community which is receiving the attention of the Government and other bodies, a special subcommittee was appointed to draw up a general health policy for the Branch, which was adopted by the Council in August. Copies have been sent to the Federal Council, other State Branches, and to local medical associations of the Queensland Branch.

**Queensland Institute of Medical Research.**—A letter was sent to the Minister for Health and Home Affairs congratulating him upon the establishment of an Institute of Medical Research, as outlined in the Press, and assuring him of the full cooperation of the Association.

**Queensland Health Education Council.**—The Queensland Health Education Council, which was instituted by an Order in Council of the Governor during the year, has superseded the Queensland Cancer Trust, and its activities have been extended to "educate the public in health matters generally".

The medical members appointed by the Government include Dr. Alan E. Lee, Dr. L. M. McKillop, Dr. Konrad Hirschfeld, Dr. E. H. Derrick and Dr. A. B. Fryberg.

A conference of interested bodies was held on August 7 to discuss the best avenues for the expenditure of public

money on health education of the general public, at which the Branch was represented by Dr. Harold Crawford. Subsequently recommendations drawn up by a subcommittee were submitted to the Health Education Council, and a copy of the general health policy of the Branch was forwarded.

**Operations Performed on a Minor.**—In response to an inquiry for a statement as to the legal responsibility of the profession in connexion with an operation performed on a minor, a reply was received from the Minister for Health and Home Affairs. It was stated that the Solicitor-General advises that parents under Queensland law have full control of infants within the meaning of our *Children's Protection Act*, 1896, and an operation on such an infant would be an assault. On the other hand, if the parent's refusal of consent were perverse, such parent might be guilty of an offence under the act, or even of manslaughter.

**Lead Poisoning.**—No improvement in the position with regard to lead in paint has been achieved. It is contended by the Master Painters' Association that, while the Federal Government permits paint to be manufactured with lead as a pigment, the painters have no alternative but to use it. Dr. L. J. J. Nye addressed the Master Painters' Association on the incidence of lead poisoning in Queensland. Subsequently at a joint conference between representatives of the Master Painters, Signwriters and Decorators' Association of Queensland and representatives of the Operative Painters' Union, it was decided to ask the British Medical Association to join them in a deputation to the Minister for Health in an endeavour to clarify the position with regard to the quantity of lead being used in the manufacture of paint. A reply was sent stating that we are only too pleased to cooperate, and Dr. D. Gifford Croll and Dr. L. J. J. Nye will represent the Branch at the deputation to the Minister.

**Acute Anterior Poliomyelitis.**—At the suggestion of the Minister for Health, a conference was held on March 9 to make recommendations for the prevention of the spread of this disease, at which the Association was represented by the President, Dr. H. W. Horn. The recommendations were as follows: That consultants should be made available and that patients be isolated for fourteen days. If a case occurs in a school child, all children in the class are to be isolated at home. Contacts under fourteen years of age are to be isolated at home for fourteen days. Power to control children at theatres, picture shows *et cetera* to be obtained. The treatment will depend upon the medical practitioner in charge of the case, and the wish of the parents.

**Peters-Arctic Delicacy Company, Limited, Staff Super-annuation Scheme.**—A letter was received from the trustees of the scheme, stating that they are desirous of instituting a free medical examination for each member of the super-annuation scheme, in addition to the welfare benefits already provided, and requesting advice on the matter. A conference of representatives of both bodies was held, and subsequently a medical officer was appointed to whom a fee of one guinea is to be paid for each individual examination, and the scheme will also meet the cost of any further examination by a specialist where necessary. All members of the scheme are invited to submit to free medical overhaul.

**Liquor Reform Society.**—At a conference of organizations interested in liquor reform which was held in July, a session was organized by the Council to present the scientific angle to the public. Dr. L. P. Winterbotham acted as chairman of the session and the speakers were Professor John Bostock and Dr. F. W. R. Lukin.

**Health Inspectors' Association: Annual Conference.**—The President, Dr. H. W. Horn, accepted an invitation to attend the annual conference of the Health Inspectors' Association, and delivered an address at the opening meeting on Tuesday, August 21. These annual conferences have been in abeyance for some years owing to the war.

**Assistants in Doctors' Surgeries.**—The question of salaries paid to trained nurses in doctors' surgeries was raised by the Australasian Trained Nurses' Association at the request of their members concerned, with a view to having the amount increased to £5 9s. per week as provided in the award for registered nurses employed in industrial and commercial establishments.

A reply was sent to the effect that the Council is in favour of adequate salaries being paid, but it is not in a position to bind doctors in their individual contracts with trained nurses.

An application is to be made to the Industrial Arbitration Court by the Federated Clerks' Union to have receptionists in doctors' surgeries brought under the conditions of the clerks' award. The claim will be opposed by the Association.



**Historical Records.**—With the object of collecting and preserving medical records of the early part of this century in Queensland, a subcommittee has been appointed comprising Dr. E. S. Meyers, Dr. Harold Love and Professor John Bostock.

**Queensland Surf Life Saving Association.**—It has come to the notice of the Council that a member was acting as honorary medical officer to a surf life saving club, and it was pointed out to him that the holding of such an appointment was an infringement of By-law 51, namely: "No member of the Association shall act as Honorary Medical Officer of any athletic, sporting, racing or similar body." The member subsequently resigned from the position.

Dr. F. W. R. Lukin holds appointment as honorary medical officer to the Queensland State Centre of the Surf Life Saving Association and liaison officer between the Queensland Branch of the British Medical Association and that organization, to which position he was nominated by the Council. This does not involve giving free treatment to members of the Surf Life Saving Association.

#### Hospital Matters.

The Hospital Subcommittee did not function this year, and matters concerning hospitals have been dealt with by the Organization Subcommittee.

**Hospitals Act Amended.**—The *Hospital Act Amendment Act* came into force during the year, and all efforts to have medical representation on hospital boards have been unsuccessful. The Part-Time Medical Officers' Association of the Brisbane and South Coast Hospitals Board has also approached the Minister for Health and Home Affairs regarding the matter.

The Brisbane and South Coast Hospitals Board, as reconstituted, consists of eight members appointed by the Government and one by the seventeen local authorities in the board's area. The majority of the appointees are government departmental officers and union officials.

**Hospital Policy of the Branch.**—During the year the hospital policy of the Branch was revised to meet altered conditions. The planning of hospitals in the past was largely influenced by the fact that public hospitals were regarded as places for treatment of the sick poor, but this function has almost disappeared in Queensland, and public hospitals are used to a great extent by the whole community. Only about 20% of hospital patients in Queensland use private hospitals. It is considered, therefore, that hospitals should be divided into three classes, (i) community hospitals, (ii) base hospitals, (iii) special hospitals, and the first requirement for an improved hospital system in Queensland is decentralization. The amended hospital policy of the Branch is based on these lines, and copies have been sent to interested bodies and to members who had submitted comments on the draft policy which was circularized to all members of the Branch.

**Lack of Hospital Accommodation.**—A conference of interested parties was arranged by the Council of the British Medical Association to consider what steps could be taken to improve the position of shortage of hospital accommodation. Further private hospitals have had to close down owing to lack of nursing and domestic staff. The only solution appears to be to make more beds available and provision of adequate staff.

**Annual Leave for Hospital Medical Officers.**—This matter has been taken up with the Department of Health and Home Affairs, in view of the fact that some hospital boards include a clause in their by-laws making it necessary for the medical officer of the hospital to provide a *locum tenens* at his own expense for four weeks' annual holiday. It is considered that the cost of a *locum tenens* for the period of four weeks should be borne by the hospital board.

**Hospital Benefits Act, 1945.**—The Federal Council met the Acting Minister for Health, Senator Keane, and other departmental officials on October 16 to discuss the *Hospitals Benefits Act, 1945*, when the policy of the Federal Council was placed before them.

The question of the retention of honorary medical service to public hospitals in the event of the abolition of the means test is under consideration by the Branches.

#### Lodges

The Joint Committee of representatives of the Friendly Societies Medical and Hospital Council and lodge medical officers met on three occasions. The representatives of the Branch are: Dr. L. P. Winterbotham, Dr. H. W. Horn, Dr. T. A. Price, Dr. F. W. R. Lukin.

**Capitation Fee: Metropolitan Area.**—Approval was granted by the Prices Commissioner for payment of increased capitation fees to medical officers in accordance with the sliding scale laid down in the agreement between the Friendly Societies Medical and Hospital Council and the British Medical Association. The capitation fee for the year commencing July 1, 1945, was computed by the Government Statistician as 33s. 6d. for adult male members.

**Capitation Fee: Country Areas.**—The Council has expressed the opinion that the rate for country areas should be a 25% increase on the metropolitan rate.

The Bundaberg Local Association suggested that the lodge rates should be compulsorily fixed by the Branch Council, and not left to local associations or lodge medical officers, as at present provided in the by-laws, which it is considered should be amended. This suggestion has been referred to the local associations for their comment.

**Federal Common Form of Agreement.**—At the last meeting of the Federal Council it was decided that the time has arrived for the implementation of the agreement, and a communication is being forwarded to the Federal Council of the Friendly Societies Association asking whether the friendly societies throughout Australia are prepared to accept the Common Form subject to agreement being reached in regard to rates which will be on a sliding scale.

#### Building Subcommittee.

**Personnel:** Dr. D. Gifford Croll, Dr. M. Graham Sutton, Dr. S. F. McDonald, and the *ex-officio* members of the Council. The activities of the subcommittee have been resuscitated with the object of considering the question of the erection of a new building on the Wickham Terrace site.

#### Medical Fees Tribunal.

**Personnel:** Dr. G. P. Dixon (Chairman), Dr. Alan Lee (Honorary Secretary), Dr. J. G. Wagner, Dr. D. Gifford Croll, Dr. H. S. McLelland, Dr. S. F. McDonald.

Four cases were dealt with during the year, in two of which the verdict given was: "That the fee charged was fair and just." In the third case, in which a fee of £6 6s. had been charged, the finding was: "That the fee charged was higher than was warranted and that the just fee for such service was £4 4s." In the fourth case a fee of £80 was charged for an operation, including assistant and anaesthetic fees and drugs. The finding of the tribunal was: "That the fee was considerably higher than was warranted and that a just fee for such service was £38 17s."

#### British Medical Association (Queensland Branch) Memorial Fund.

The indenture has been drawn by our solicitors, and the President, Honorary Treasurer and Honorary Secretary, for the time being in office, have been appointed trustees.

The purposes of the fund are as follows:

1. To provide prizes commemorating distinguished members of the Queensland Branch of the British Medical Association for meritorious students in the University of Queensland in the Faculty of Medicine.

2. To provide volumes commemorating distinguished members of the Queensland Branch of the British Medical Association to the library of the said Branch endorsed with such commemoration on the fly leaf of such volume signed by the President for the time being of the Branch.

3. To provide a British Medical Association Memorial Roll to be kept in conjunction with such Memorial Fund. The name of a deceased member shall be entered in such Memorial Roll on the instructions of the Council of the said Branch, so that such Memorial Roll may be read by the President for the time being of such Branch at every annual meeting of the Branch.

4. To provide for any other kind of memorial to distinguished members of the said Branch that the trustees may determine at the request of the Council of the said Branch.

5. The name of a deceased member of the said Branch shall not be inscribed on the Memorial Roll unless: (a) Not less than three friends of the deceased member make application to the trustees that his name be inscribed. (b) The Council of the said Branch certify the deceased member to have been a distinguished and honourable member of the Queensland Branch of the British Medical Association and of the medical profession. (c) The sum of not less than twenty-five pounds to be paid into the Memorial Fund by the friends of such deceased member at the time of such application.

With the concurrence of its trustees, the Eustace Russell Memorial Fund has been added to the Memorial Fund of the Branch.

The following is a list of the foundation members to be entered on the Memorial Roll: Joseph Bancroft, Kearsey Cannan, Ernest Sandford Jackson, John Mowbray Thomson, Charles Ferdinand Marks, William Nathaniel Robertson, Donald Allan Cameron, Francis Washington Everard Hare, William Frederick Taylor, Peter Bancroft, Joseph Esple Dods, James O'Neill Mayne, James Barr McLean, Hugh Bell, Eustace Russell.

The Council has also approved of the following names being entered on the Memorial Roll: John Lockhart Gibson, Kenneth Joseph Gilmore Wilson.

#### Affiliated Local Associations.

##### Rockhampton Local Medical Association.

The membership of the Association is as follows: President, Dr. F. C. Wooster; Honorary Secretary, Dr. R. Palmerston Rundle; other members are Dr. E. R. Watkins, Dr. Paul E. Voss, Dr. D. B. Walker, Dr. C. N. Matheson, Dr. Adah Stuart, Dr. W. E. Hasker, Dr. Doris Skyring, Dr. Vincent T. J. Lynch, Dr. Bruce Gordon, Dr. N. C. Talbot, Dr. J. C. Ross, Dr. B. R. V. Forbes.

Two meetings were held during the year. The first, which was preceded by a dinner and followed by supper, consisted of medical films and an address by the President of the Queensland Branch, Dr. H. W. Horn. The second meeting included an address by Dr. A. G. S. Cooper on "Indications for Radium and X-Ray Therapy".

R. PALMERSTON RUNDLE,  
Honorary Secretary.

##### Bundaberg Local Medical Association.

The membership of the Association is as follows: Dr. E. Schmidt (President), Dr. I. C. Hains (Honorary Secretary-Treasurer), Dr. Duncan Fowles, Dr. L. McKeon, Dr. A. W. Graham.

We have to report for the year just past that the Association of members is developing along the direction of strengthening the ties between the members. Regular meetings are held and discussion is free, and careful records are kept of all proceedings, and there is general unanimity on decisions made.

During this term we have had the pleasure of addresses by Dr. A. G. S. Cooper, of the Queensland Radium Institute, Brisbane, who addressed us on radium and radio-therapeutics. We greatly appreciated the detailed information given on this important subject, also by Professor J. V. Duhig, of the Queensland University, who more recently, at short notice, addressed us on various matters of pathological and biochemical interest. These lectures we feel are very important inasmuch as the spoken word is a vast help in augmenting what is learnt by experience, as also the written word. We trust, therefore, that in the days to come we may have more such addresses or lectures, particularly as air travel is now so convenient and space has been greatly diminished accordingly.

I. C. HAINS,  
Honorary Secretary.

##### Maryborough Local Medical Association.

Several meetings have been held during the year to discuss lodge capitation fees, the annual meeting being held on October 14, 1945.

Office-bearers elected are: President, Dr. A. J. Kennedy; Honorary Secretary, Dr. O. E. Nothling; other members are Dr. D. T. Rushton Smith, Dr. K. H. Hooper, Dr. Egmont Theile, Dr. Alice M. Theile.

It was resolved at the annual meeting to draw up a constitution and submit a draft to the members in one month's time.

EGMONT THEILE,  
For the Honorary Secretary.

##### Townsville Local Medical Association.

The annual meeting of this Association was held on August 16, 1945.

Election of officers was as follows: President, Dr. W. B. Chapman; Honorary Secretary-Treasurer, Dr. L. Halberstater; the other members are Dr. H. A. Sundstrup, Dr. John Breinl, Dr. A. G. Bennett, Dr. V. F. A. O'Neill, Dr.

F. R. Tod Stevens, Dr. G. H. Moore, Dr. Beatrice Nelson, Dr. W. J. Chapman.

It was decided to undertake negotiations with the lodges for variation of fees. Negotiations are proceeding.

L. HALBERSTATER,  
Honorary Secretary.

#### Other Local Medical Associations.

The Cairns and Kingaroy Local Medical Associations report that, owing to the war position, they are unable to hold meetings.

#### British Medical Agency of Queensland, Proprietary, Limited. Queensland Medical Finance, Proprietary, Limited.

After five years' service with the Royal Australian Navy, Mr. S. N. Cobbold resumed the management of the agency and the secretaryship of the Queensland Medical Finance, Proprietary, Limited, in September last. He subsequently made a tour of south-eastern Queensland with a view to assisting members released from the armed forces to reestablish themselves in civilian practice.

Mr. F. K. Davis, who was acting manager and secretary of the two companies respectively, is remaining on as assistant to Mr. Cobbold, and will still carry on all services to members hitherto attended to by him.

Whilst extending a welcome to Mr. Cobbold and wishing him every success in the future, the Council desires to place on record its appreciation and thanks to Mr. Davis for the able manner in which he carried out his duties and assistance to members during the difficult period of the war years.

During the year a Ford sedan car has been purchased by the agency and is available to members on a "Drive Yourself" basis. It is for use at such times as members' own cars are out of commission, and has proved a very useful service.

#### Pharmaceutical Benefits Act, 1944.

The implementation of the *Pharmaceutical Benefits Act* by the Commonwealth Government is still a matter for conjecture, as its validity has been tested in the Victorian courts by the Attorney-General of that State. The verdict is awaited with interest.

In October last an unsatisfactory conference took place between the Federal Council of the British Medical Association and the Acting Minister for Health. At the conference the Minister was asked whether the Government was prepared to meet the four objections of the Federal Council to the act. Upon a negative reply being received, the Minister was informed that the Federal Council's policy of non-cooperation with the Government would continue.

Members of the Branch will be advised further on the matter in the event of the implementation of the act being proclaimed.

In July, Dr. J. G. Hunter, General Secretary of the Federal Council, visited Queensland with the object of informing members of the Branch of the latest developments in connexion with the *Pharmaceutical Benefits Act*. He addressed members at an extraordinary general meeting of the Branch, and, accompanied by Dr. Alan Lee, he made a tour of south-western Queensland, and contacted practically all the medical practitioners in the various towns visited, either individually or at meetings, and placed before them the views of the Federal Council on the act. In addition, he addressed representatives of the Trades and Labour Council concerning the views of the organized profession in relation to the *Pharmaceutical Benefits Act*.

#### Federal Council.

During the year two meetings of the Federal Council were held in Melbourne, at which the Branch was represented by Dr. Alan Lee and Dr. Thos. A. Price at the first meeting, and at the second meeting by Dr. Alan Lee and Dr. D. Gifford Croll (replacing Dr. Price, who was unable to attend). A record of the proceedings of the meetings is published in *THE MEDICAL JOURNAL OF AUSTRALIA*.

We were pleased to have a visit from the General Secretary of the Federal Council, Dr. J. G. Hunter, in July last.

The *Pharmaceutical Benefits Act, 1944*, is referred to in another part of this report, and the question of the general medical services is still *in statu quo*. Both these subjects are of major interest to the medical profession at present and have occupied a great deal of time and thought by the Federal Council.

Many other matters of great importance were dealt with by the Federal Council at its meetings.

A special contribution of £500 was forwarded to the Federal Council by the Branch for organization expenses. This amount was taken from the organization fund of the Branch.

#### Australasian Medical Publishing Company, Limited.

We are pleased to state that the directors of the company have once again decided to continue the generous rebate to the Branches of ten shillings for each member who has totally relinquished civil practice as at December 31, 1945, for continuous full-time service in His Majesty's Forces.

#### "The Medical Journal of Australia."

Owing to a printers' strike in New South Wales, publication of the journal has been temporarily suspended as from September 15, and members have been deprived of their copies for a period of nine weeks. This is the first time that THE MEDICAL JOURNAL OF AUSTRALIA has ever failed to put in its weekly appearance.

Lists of members of the Branches of the British Medical Association in Australia, published by the Australasian Medical Publishing Company, Limited, are now available at the Branch office.

#### University of Queensland.

**British Medical Association (Queensland Branch): Queensland Medical Students' Loan Fund.**—The personnel of the committee of administration is as follows: Dr. C. A. Thelander (chairman), Professor H. J. Wilkinson, Dr. E. S. Meyers, Dr. Alex. Murphy, Dr. Arnold Robertson (a representative of the University of Queensland Medical Society, nominated annually by the society) and the *ex-officio* members of the Council. The President attended a meeting of medical students on May 8, when the objects of the loan fund were put before them. The fund now stands at £346 0s. 4d., and during the year £15 1s. was donated by medical students and £55 18s. 9d. by members of the Branch.

**Faculty of Medicine.**—At meetings of the faculty of medicine the Branch is represented by the President, upon the nomination of the Senate. This provides a valuable liaison between the Association and the faculty of medicine. An important matter under discussion during the year was the revised medical curriculum, soon to be embarked upon at this university.

**Queensland Post-Graduate Medical Education Committee.**—This committee is working in close relationship with the British Medical Association in regard to the rehabilitation of medical officers returned from the services, and is taking an active part in the educational aspect of the matter.

**University of Queensland Medical Society.**—Dr. W. H. Steel has been appointed to act as liaison officer between the Branch Council and the society. Assistance was rendered in obtaining non-medical books for the society's library to be established for the use of undergraduate members, and several members of the Branch donated suitable books for this purpose.

**Harold Plant Memorial Prize, 1945.**—This prize was awarded to Desmond Neville Botcher, and was presented to him by the President of the Branch at the Jackson Lecture held on September 7.

**Eustace Russell Memorial Prize, 1945.**—The winner of this prize was Donald Nicholson O'Reilly, and was presented by the President of the Branch at the Jackson Lecture on September 7.

**William Nathaniel Robertson Medal, 1945.**—Advice was received from the Registrar of the University of Queensland that this medal was won by Desmond Neville Botcher.

#### Joseph Bancroft Memorial Lecture.

Brigadier N. Hamilton Fairley, O.B.E., M.D., F.R.S., delivered the 1945 Joseph Bancroft Memorial Lecture on Friday, June 1, in the Medical School Hall on the subject of "Tropical Medical Research in the Australian Army". There was an attendance of 51 members and visitors. A vote of thanks to the lecturer was moved by Dr. Ellis Murphy and seconded by Dr. C. C. Minty. At the conclusion of the lecture the President presented the Bancroft Memorial Medal to Brigadier Fairley.

#### Jackson Lecture.

On Friday, September 7, the Jackson Lecture, which is given annually in memory of the late Ernest Sandford Jackson, was delivered by Dr. S. Julius, his subject being "The History of Medicine in Soviet Russia".

#### Social.

**Council Dinner.**—Prior to the Bancroft Lecture, the President and members of the Council entertained the lecturer, Brigadier N. Hamilton Fairley, at dinner at the Belle Vue Hotel on Friday, June 1. Other guests at the dinner were Surgeon Captain Lambert Rogers, Commander in Chief, British Pacific Headquarters; Surgeon Captain C. Keating, Medical Officer in Charge, Royal Naval Hospital, Brisbane; Surgeon Commander Gavin Cameron, Senior Medical Officer, Royal Australian Navy, Brisbane; Colonel K. B. Fraser, D.D.M.S., Headquarters, Queensland L. of C. Area; Wing Commander Wicks, D.P.M.O., R.A.A.F., Brisbane; Dr. Ellis Murphy, Chairman, Queensland State Committee, Royal Australasian College of Physicians; Dr. J. J. Power, Chairman, Queensland State Committee, Royal Australasian College of Surgeons; Dr. S. F. McDonald.

**Dinner to Returned Prisoners of War Members.**—One of the most enjoyable functions ever held by the Branch was a dinner party at Lennon's Hotel on November 15, to give members an opportunity of extending a welcome to Major B. L. W. Clarke, Major Clive Uhr, Captain C. R. Huxtable, M.C., Captain Clive Boyce and Captain L. P. Sapsford. Seventy-five members of the Branch were present.

#### Finance.

It will be noted from the balance sheet that the net surplus for the year was £225 11s. 8d.

#### Conclusion.

It must be appreciated that this report to the members mirrors only in part the enormous volume of business dealt with by the Council in the year now past.

The document would be incomplete without reference to the ready spirit of cooperation shown by all, whether at council meetings, on committees, or in other matters where personal sacrifice of time and energy has been called upon in the interests of the public or the profession.

Nor would the efficient working of our organization have been possible without the diligence and ability of the Secretary (Mrs. Spooner) and her staff, in which respect the Queensland Branch is indeed fortunate.

In the presentation of the report I have no hesitation in commending the work of your representatives at all times.

(Signed) H. W. Horn,  
President.

#### BALANCE SHEET AND FINANCIAL STATEMENT.

The balance sheet and financial statement for the year ended November 15, 1945, were taken as read and adopted on the motion of Dr. J. G. Wagner, seconded by Dr. A. E. Lee. The statements are published herewith.

#### ELECTION OF OFFICE-BEARERS.

The President announced the results of the election of office-bearers and members of the Council.

**President:** Dr. J. G. Wagner.

**President-Elect:** Dr. Horace Johnson.

**Past President:** Dr. H. W. Horn.

**Honorary Secretary:** Dr. Norman Sherwood.

**Councillors:** Dr. H. W. Anderson, Dr. Felix Arden, Dr. R. V. Adamson, Dr. T. V. Stubbs Brown, Dr. E. W. Casey, Dr. D. Gifford Croll, Dr. Milton Geaney, Dr. Alan E. Lee, Dr. F. W. R. Lukin, Dr. C. C. Minty, Dr. J. G. Morris, Dr. T. A. Price, Dr. W. H. Steel, Dr. L. P. Winterbotham.

#### ETHICS COMMITTEE.

Dr. M. Graham Sutton, Dr. L. J. J. Nye, Dr. S. F. McDonald, Dr. J. J. Power, Dr. R. G. Quinn, Dr. J. G. Avery and Dr. G. P. Dixon were elected members of the Ethics Committee.

#### ELECTION OF AUDITORS.

Messrs. R. G. Groom and Company were reelected auditors on the motion of Dr. J. G. Wagner, seconded by Dr. Robin Charlton.

#### MEMORIAL ROLL.

The President read the Memorial Roll of the Branch and gave a list of the foundation members as follows: Joseph Bancroft, Kearsey Cannan, Ernest Sandford Jackson, John Mowbray Thomson, Charles Ferdinand Marks, William Nathaniel Robertson, Donald Allan Cameron, William Frederick Taylor, Peter Bancroft, Joseph Espie Dods, James



## QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION (INCORPORATED).

## Balance Sheet as at November 15, 1945.

LIABILITIES.				ASSETS.			
	£	s.	d.		£	s.	d.
<b>Fixed Liabilities—</b>				<b>Fixed Assets, at cost, less depreciation—</b>			
Loan from Queensland Medical Land Investment Company, Limited ..			4,650 0 0	Land and Buildings—B.M.A. House	2,428	10	9
<b>Current Liabilities—</b>				Library	150	0	0
Subscriptions for Remittance to:				Typewriters, Bookcases, Balopticon and Furniture	84	10	5
British Medical Association, London ..	28	16	5	Bancroft Medals and Collar ..	4	10	0
Australasian Medical Publishing Company, Limited, Sydney ..	27	0	0				2,667 11 2
				<b>Queensland Medical Land Investment Company, Limited—5,950 Shares of £1 each paid to 10s. each—at cost ..</b>	2,975	0	0
<b>Association Funds—</b>				<b>British Medical Agency of Queensland Proprietary, Limited—257 Shares of £1 each, fully paid—at cost ..</b>	257	0	0
Accumulation Account ..	5,116	14	5				3,232 0 0
Sinking Fund ..	388	5	3	<b>Australian Consolidated Inscribed Stock—</b>			
Reserve for Dinners, Entertainments, etc. ..	28	8	0	3½%, maturing 1959 ..	1,500	0	0
			5,533 7 8	3½%, maturing 1960 ..	300	0	0
							1,800 0 0
				<b>Australasian Medical Publishing Company, Limited—</b>			
				5% Debentures—at cost ..			55 0 0
							7,754 11 2
				<b>Current Assets—</b>			
				English, Scottish and Australian Bank, Limited—Credit Balance, Current Account ..	1,478	3	11
				Sundry Debtors ..	608	0	0
				Electric Light Deposit ..	6	0	0
				Cash in Hand ..	4	3	9
							2,096 7 8
				<b>Sinking Fund Investments—</b>			
				Australian Consolidated Inscribed Stock—			
				£280: 3½%, maturing 1951, at cost	278	3	3
				£90: 3½%, maturing 1960 ..	90	0	0
				Commonwealth Savings Bank, Brisbane—Credit Balance ..	20	2	0
							388 5 3
							£10,239 4 1

We have compared the above Balance Sheet with the Books, Accounts and Vouchers of the Queensland Branch of the British Medical Association (Incorporated), and have obtained all the information and explanations we have required. The Register of Members and other records which the Company is required to keep by the Companies Acts of 1941-1942, or by its Articles, have, in our opinion, been properly kept.

In our opinion, the Balance Sheet is properly drawn up to exhibit a true and correct view of the state of the Association's affairs as at 15th November, 1945, according to the best of our information and the explanations given us, and as shown by the books of the Association.

R. G. GROOM & COMPANY,  
Chartered Accountants (Aust.),  
Auditors.

(Sgd.) J. G. WAGNER,  
Honorary Treasurer.

Brisbane, 18th November, 1945.

## QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION (INCORPORATED).

## Revenue Account for Twelve Months ended November 15, 1945.

EXPENDITURE.				REVENUE.			
	£	s.	d.		£	s.	d.
<b>November 15, 1945.</b>				<b>November 15, 1945.</b>			
To Branch Expenses ..	947	16	8	By Branch and Organization Fund			
.. Library Expenditure ..	60	17	7	Subscriptions ..			2,176 0 3
.. Depreciation of Office Equipment ..	8	16	9	.. Interest—			
			1,017 11 0	Commonwealth Government Inscribed Stock ..	58	1	2
.. Federal Council—				Australasian Medical Publishing Company, Limited, Debentures	2	15	0
Contribution to Expenses ..	464	5	0				60 16 2
Special Contribution to Council Expenses ..	500	12	6	.. Sale of Nutrition Pamphlets ..			5 6 5
			964 17 6				
.. Expenses, B.M.A. House—							
Rates, Land Tax, Insurance, Repairs and Sundries ..	156	5	3				
Cleaning ..	78	0	0				
Depreciation, Building ..	48	17	5				
			282 2 8				
Less Rents Received ..	249	0	0				
			34 2 8				
.. Net Surplus for Year—							
Transferred to Accumulation Account ..			225 11 8				
			£2,242 2 10				£2,242 2 10

QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION (INCORPORATED).  
GENERAL FUND.

## Statement of Receipts and Payments for Twelve Months ended November 15, 1945.

RECEIPTS.		PAYMENTS.	
	£ s. d.		£ s. d.
November 16, 1944.		November 15, 1945.	
To Funds at November 16, 1944—		By Amounts remitted on account of	
English, Scottish and Australian		Subscriptions Collected to—	
Bank, Limited—Current Ac-		British Medical Association,	
count .. .. .	1,161 4 8	London .. .. .	831 6 0
Cash in Hand .. .. .	1 14 11	Australasian Medical Publishing	
		Company, Limited, Sydney ..	599 1 0
			1,430 7 0
November 15, 1945		.. Federal Council—	
To Subscriptions—		Contribution to Expenses ..	464 5 0
For Remittance to British Medi-		Special Contribution to Council	
cal Association, London ..	828 17 3	Expenses .. .. .	500 12 6
For Remittance to THE MEDICAL			964 17 6
JOURNAL OF AUSTRALIA, Sydney	595 12 0	.. Branch Expenses—	
Queensland Branch Subscriptions	1,091 9 0	Salaries, Audit and Honoraria ..	706 4 6
Organization Fund, Queensland		Postages and Duty Stamps ..	100 12 7
Branch .. .. .	1,084 11 3	Printing and Stationery ..	55 11 2
		Bank Charges, Meeting Expenses	
.. General—		and Sundries .. .. .	29 11 2
Rent:		Telephone Rental and Calls ..	28 6 3
British Medical Agency of		Travelling Expenses .. .. .	23 5 6
Queensland Proprietary,		Electric Light .. .. .	4 5 6
Limited, Part Payment Ar-			947 16 8
rears .. .. £250 0 0		.. B.M.A. House Expenses—	
Basement, Garage		Rates to December 31, 1945 ..	128 16 8
and Room .. .. .	28 0 0	Cleaners' Wages, Insurance, Re-	
A.T.N.A. .. .. .	8 0 0	pairs and Maintenance .. ..	94 9 10
Medical Defence		State Land Tax .. .. .	10 18 9
Society .. .. .	5 0 0		234 5 3
	291 0 0	.. Library Expenditure .. .. .	60 17 7
Sale of Nutrition Pamphlets ..	5 6 5	Funds at November 15, 1945—	
Interest on Commonwealth In-		English, Scottish and Australian	
scribed Stock .. .. .	58 1 2	Bank, Limited, Brisbane ..	1,478 3 11
Australasian Medical Publishing		Cash in Hand .. .. .	4 3 9
Company, Limited—Interest on			1,482 7 8
Debentures .. .. .	2 15 0		
			£5,120 11 8
	357 2 7		
	£5,120 11 8		

O'Neil Mayne, John Barr McLean, Hugh Bell, Eustace Russell, Thomas Lane Bancroft.

The President announced that the following names had been added to the roll during the year: Kenneth Joseph Gilmore Wilson, John Lockhart Gibson.

## INDUCTION OF PRESIDENT.

Dr. H. W. Horn then inducted Dr. J. G. Wagner to the chair.

## PRESIDENT'S ADDRESS.

Dr. J. G. Wagner read his address (see page 97).

## THE PROFESSION AND THE PUBLIC.

The following motion was carried at the instance of the President:

That this annual meeting of the Queensland Branch of the British Medical Association places on record its sincere appreciation of the cooperation given to members of the profession by the civilian public during the war years. Without that cooperation medical practice would have been chaotic.

It was decided that a copy of the resolution should be sent to the Press.

## VOTES OF THANKS.

Votes of thanks were passed to the retiring members of Council, the Honorary Secretary and the office staff for their work during the year.

## Medical Societies.

## MELBOURNE PÆDIATRIC SOCIETY.

A MEETING of the Melbourne Pædiatric Society was held on August 8, 1945, at the Children's Hospital, Carlton, Dr. H. DOUGLAS STEPHENS, the Acting President, in the chair.

## Transposition of Viscera.

DR. ALAN MCCUTCHEON showed a male patient, aged five years and eleven months. The child had first attended the

out-patient department in July, 1943, with a distended abdomen and complaining of coldness and blueness of the extremities. Consanguinity of his parents was established. He next attended the hospital on April 14, 1945, when he was noted to be mentally retarded, and a few rhonchi were audible in the right lung. The heart appeared to be on the right side and the liver on the left side. He had attended at intervals with frequent colds, anorexia and nocturnal enuresis. Dr. McCutcheon showed X-ray films taken at these visits. A barium meal examination was carried out on June 1, 1945; this revealed dextrocardia, congestion of the base of the left lung and transposition of the gastrointestinal tract. A cholecystogram was taken on July 11, 1945. The gall-bladder, which lay on the left side, was seen to be of normal size and position. It filled with the dye, concentrated it well and contracted after a fatty meal. In none of the films were there any shadows of gall-stones, and there was no evidence of abnormality of the gall-bladder. Dr. McCutcheon said that he was hoping to have a bronchogram taken later, to determine whether transposition of the lungs as well as of the other viscera was present. Dr. McCutcheon wondered whether the consanguinity of the parents might have been a factor in the anomaly in this instance. He had observed, when dealing with such children in institutions, that they were frequently retarded physically or mentally or in both ways.

DR. ROBERT SOUTHEY said that Dr. McCutcheon had covered the ground so fully that there remained little to add. In a plain X-ray film, confusion between dextrocardia and transposition of the viscera might arise, or even between these conditions and a displaced heart. The electrocardiogram was looked upon as revealing the most pathognomonic sign. This showed inversion of all the deflections in Lead I. Dr. Southey said that the patient should wear a disk disclosing his anomaly in case an abdominal operation was contemplated in later years. Dr. Southey asked whether Dr. McCutcheon had observed dextrocardia or transposition of the viscera in offspring of consanguineous parents.

Dr. McCutcheon, in reply, said that he had not previously observed this anomaly in children of consanguineous parents. He intended to study the electrocardiogram and the bronchogram.

## Imperforate Anus.

DR. J. G. WHITAKER showed a male child, aged four months, who had an imperforate anus. The confinement had been

normal, and after two days it was noted that the baby was having no bowel actions and that the abdomen was becoming increasingly distended. Rectal examination revealed an anal canal only one inch in length, with what felt like a solid block of tissue above. A sigmoid colostomy had been established, and when the baby recovered from this operation, X-ray investigation of the defect with barium filling from the colostomy revealed a probable atresia of the rectum about one to one and a half inches in length. After some difficulty in the feeding of the baby had been overcome, the child was transferred to the Children's Hospital at the age of eight weeks. Examination on his admission to the hospital revealed an infected colostomy wound with a pin-point stoma in the left iliac fossa, and the anal canal was patent for a distance of one to one and a half inches. The rest of the examination revealed no abnormality, except that the baby showed general signs of malnutrition. Soon afterwards, the colostomy opening was dilated with Spencer Wells forceps and bowel irrigations were begun; also daily dilatation of the opening with Hegar's dilators was instituted. A few days later the child was examined bimanually under general anaesthesia by Dr. Whitaker. A finger in the anal canal was separated from the finger above in the descending loop of the colostomy by a deficiency in the lumen of the rectum, the precise thickness of which was difficult to estimate, but was adjudged to be about one inch in length. The future treatment of the baby appeared to be one of three possibilities: (a) the establishment of a permanent palliative colostomy, probably in the transverse colon, owing to inadequacy of left iliac colostomy; (b) laparotomy and inspection of the bowel from above, to see whether any reconstitution would be possible; (c) the insertion of a pair of forceps up through the resisting tissue in the roof of the anal canal, in the hope that this would recanalize the deficiency. Dr. Whitaker said that the above-mentioned propositions had been explained to the parents of the baby and the risks made clear, and advice to allow laparotomy and attempted reconstitution of the bowel if possible had been given. Permission was obtained, and at laparotomy the following features were noted and the lumen of the gut was found to be hypertrophied and dilated to almost adult size, and passed downwards to end suddenly where the rectum became extraperitoneal. At this stage a pair of Spencer Wells forceps was introduced *per rectum* and pushed upwards, and guided by the operator's hand from above, was pushed through the obstructing tissue till it was palpated within the lumen of the lower sigmoid colon above. The sigmoid colon was opened, and a length of rubber tubing was grasped in the forceps, pulled through the opening and made to issue through the anus. This end of the tube was sutured to the skin around the anus. The opening in the sigmoid colon was closed and oversewn, a drain tube was placed in the pelvis and the abdominal wound was closed. The child had made satisfactory progress after operation. Liquid faeces were passed through the rectal tube on the first day, while the iliac colostomy functioned normally and continued to do so for three days, when the tube slipped from the rectum as the restraining sutures sloughed from the perineal skin. It was found that the tube could be replaced easily, and so it was removed completely, and daily dilatation of the reconstituted gut was commenced. From that time the child had passed semi-solid, normal-sized stools *per rectum*, and dilators up to Hegar's Number 13 could be passed with ease. The colostomy had not yet closed. The abdominal wound was almost healed. The child was apparently healthy and making progress. Dr. Whitaker said that only time would determine the ultimate outlook.

Dr. JOHN BEGG sought information on the treatment of patients with imperforate anus. He had been injudicious enough to operate on such a patient. The child was left with a perineal anus, but no hope of a satisfactory sphincter mechanism. The alternative of a permanent colostomy offered little solace, though perhaps it was preferable to a perineal anus. Dr. Begg wondered whether such patients should be treated surgically or allowed to die.

Dr. H. C. COLVILLE quoted a recent unusual experience of his own. He said that five years earlier he had examined a baby two hours after birth; the baby had an imperforate anus, as well as a rudimentary tail. Dr. Colville observed that there was a pronounced bulge in the perineum when the baby cried. He punctured the bulging area, and was rewarded by a free flow of cerebro-spinal fluid. He hastily closed this opening and explored the perineum, until he found the rectum and brought it down and sutured it to the region of the anus. At the time of the meeting the child was five years old, and presented the problem raised by Dr. Begg. It could be said that this child was certainly not

the "write off" that Dr. Begg had visualized; he was a fine, sturdy little boy, and needed dilatation only at intervals. By careful training, in which the child was encouraged to empty his bowels at a definite time each day, much had been accomplished. During the remainder of the day there was a slight faecal stain only. Some degree of sphincteric control did develop, though anatomically no sphincter existed. Dr. Colville said that he was wondering whether greater sphincteric control developed in later life, and whether anyone had attempted to construct a sphincter from the adjacent muscles, such as the glutei.

Dr. ROBERT SOUTHEY said that he was interested in a boy who had had a colostomy established when he was a few hours old. The boy went through school and later joined his father in business. He died at the age of twenty years from streptococcal septicæmia, after a full life of comparative comfort.

Dr. PETER BLAUBAUM asked whether the injection of dye to determine the size of the block of tissue constituting the atresia was a safe procedure.

Dr. H. DOUGLAS STEPHENS said that he was not nearly so pessimistic as Dr. Begg about imperforate anus; the outlook was hopeful if a bulge could be visualized in the perineum when the baby strained. It was Dr. Stephens's belief that the operative treatment outlined by Ladd and Gross was best. He had removed the coccyx and made an artificial anus posterior to the usual site, but had not found it satisfactory. In some cases it was better to establish a colostomy and drainage. The ultimate result in these cases was interesting. Dr. Stephens said that a few weeks earlier a strong man had walked into his office and told him that he (Dr. Stephens) had operated on him at the Children's Hospital twenty years earlier for imperforate anus. Two years later Dr. Stephens had again operated on him for an inguinal hernia. Later he had found out that he had congenital heart disease. The man was a butcher, and his bowels were open every day. Dr. Stephens said that he asked to see the patient's perineum, and succeeded in passing a Number 22 Hegar's dilator without much difficulty.

(To be continued.)

## The Royal Australasian College of Surgeons.

### A POST-GRADUATE COURSE IN SURGERY.

THE Royal Australasian College of Surgeons will conduct in Melbourne a post-graduate course. It will begin on March 4 and conclude on May 31, 1946. The course is suitable for all graduates who wish to undertake post-graduate study in surgery, and is not designed solely for those desiring to present themselves for senior surgical qualifications.

Lectures will be delivered at Prince Henry's Hospital from 2 to 3.30 o'clock p.m. on Mondays, Wednesdays and Fridays. Lecture demonstrations will be held on Tuesdays and Thursdays from 2 to 4 o'clock p.m. From March 5 to April 2 inclusive the demonstrations will take place at the Alfred Hospital; from April 4 to April 23 the venue will be Saint Vincent's Hospital; on April 25 the Children's Hospital; from April 3 to May 23 the Royal Melbourne Hospital.

Lectures and lecture demonstrations will be arranged in the surgical specialities. These will be announced in detail following the receipt of entries which close on January 31, 1946.

Twenty-four lectures and lecture demonstrations in pathology will also be arranged.

### MEETINGS OF THE COURTS OF EXAMINERS.

THE next meeting of the Courts of Examiners of the Royal Australasian College of Surgeons for the Primary Examination for Fellowship of the College will be held in Melbourne, Australia, and in Dunedin, New Zealand, probably early in June, 1946.

The next meeting of the Court of Examiners for the Final Examination for Fellowship of the College will be held at the College in Melbourne in the first week in June, 1946.

Candidates who desire to present themselves at either of these meetings should apply to the Censor-in-Chief for



permission to do so on or before April 1, 1946. The appropriate forms are available from the Secretary of the Royal Australasian College of Surgeons, Spring Street, Melbourne, C.I.

## The Royal College of Obstetricians and Gynaecologists.

### EXAMINATION FOR MEMBERSHIP.

CANDIDATES who have not indicated their intention to sit for the examination for membership of the Royal College of Obstetricians and Gynaecologists are asked to do so as soon as possible. All inquiries should be addressed to Professor R. Marshall Allan at the University of Melbourne.

## Post-Graduate Work.

### COURSES IN QUEENSLAND IN 1946.

THE University of Queensland Post-Graduate Medical Education Committee announces that the following courses will be held in 1946.

#### General Revision Course.

The general revision course is of thirteen weeks' duration and will be repeated twice during the year, so that there will be continuous clinical lecture demonstrations throughout 1946. In this way, any service medical officer granted three months' pre-discharge training, any ex-service medical officer granted three months' post-discharge rehabilitation training or any post-graduate training to attend a general refresher course, by joining the class at any time during the year and attending the sessions set out in the time-table to be circulated, will cover the five parts of the course.

Part I: Paediatrics, of three weeks' duration, commencing on Monday, February 4, 1946.

Part II: Medicine, of three weeks' duration, commencing on Monday, February 25, 1946.

Part III: Obstetrics and gynaecology, of two weeks' duration, commencing on Monday, March 18, 1946.

Part IV: Surgery, of three weeks' duration, commencing on Monday, April 1, 1946.

Part V: The specialities, of two weeks' duration, commencing on Monday, April 22, 1946.

Three or four lecture demonstrations will be held each week, in the afternoon or evening, during each part of the course. The time and place of each lecture will be indicated on a detailed programme shortly to be circulated.

Course II, a repetition of Course I, will commence on Monday, May 6, 1946.

#### Senior Course in Medicine.

The senior course in medicine is suitable for candidates preparing themselves for the M.R.A.C.P. and M.D. examinations. This will be run concurrently with Part II (medicine) of the general revision course, which will be supplemented by lecture demonstrations in pathology, clinical rounds in the medical wards *et cetera*.

#### Anatomy and Principles of Pathology.

This course is suitable for candidates preparing themselves for the M.S. (Part I). This is term III of the course, parts I and II of which were held in 1945. Term III will commence sometime in March, on a date to be announced later. Term III (anatomy) will cover the anatomy of the extremities, in ten evening courses, each of which is of two hours' duration. The "Principles of Pathology" will also be covered in ten lectures. The fees for this course will be £7 7s. per subject per term, providing nine members take the full course.

#### Bancroft Oration and Post-Graduate Week.

The Bancroft Oration will be delivered on June 7, 1946, and will be followed by post-graduate week, June 7 to 14, 1946.

### Week-End Courses in Country Centres.

Week-end courses to be held in country centres will be announced later.

Post-graduate students are welcome at the medical school library for study purposes. Books and journals may not be removed from the library.

Service medical officers and ex-service medical officers desiring further information on post-graduate study should communicate with Dr. P. H. Macindoe, Medical School, Herston Road, Brisbane (telephone: BO 534).

## Correspondence.

### THE USE AND MISUSE OF TETANUS ANTITOXIN.

SIR: A pamphlet, wrapped round each container of antitoxin, is issued by the Commonwealth Serum Laboratories, in which it is set out, under the heading, Directions for Use: "If the subcutaneous route is chosen the most favourable position for injection is under the loose skin of the lower abdomen." In Sydney and suburbs this direction seems to me to be almost universally ignored. The upper arm is the site selected, with the almost inevitable result that the unfortunate patient experiences a more or less severe reaction; the reaction frequently is so severe that he is disabled and suffers much more from the treatment than from the original injury. My experience is that such reaction and incapacity do not eventuate if the proper site is chosen for the injection.

While no one questions the expediency of administering tetanus antitoxin in cases of penetrating wounds, such as puncture by nails in the feet or puncture by cargo hooks and in lacerated, contused or dirty wounds, it does, however, seem to me unnecessary and overdoing it to follow the same procedure in ordinary clean-cut quite superficial wounds. Having in mind that the tetanus bacillus is anaerobic, it would be more appropriate to administer antitetanic serum to everybody who runs a rose thorn into their finger or pricks it with a needle or pin. Like so many other useful remedies, it is overdone.

Some years ago I had occasion to investigate the morbidity and fatal cases from tetanus in New South Wales; the statistics showed that the principal incidence was in children under ten years of age who contracted it from penetrating wounds in bare feet. In adults frequently the origin and mode of infection were not discovered. It was also found that it was as common in clerks as in fellmongers and there were several cases after septic abortion. I have known more than twenty sheep die from it after shearing in one shed, and the infection was traced to a particular tar pot that was used for dressing the wounds caused at shearing.

I have been prompted to write this note in the hope that a little more discretion and horse-sense may be exercised in administering the antitoxin, because I have seen such a number of cases of suffering and disability from its misuse.

Yours, etc.,

STAFFORD SHEDDEN, M.B., Ch.M., B.Sc.  
28, O'Connell Street,  
Sydney,  
December 12, 1946.

### FUNCTIONAL DISORDERS.

SIR: Half the patients seen in general practice have nothing organically wrong with them. This opinion has been frequently expressed and statistically confirmed by J. B. Barton. These patients are suffering from functional disorders of various kinds, including neurasthenia, anxiety states, functional dyspepsia, cardiac, gastric, ocular, bladder, genital and other neuroses, stammering, writer's cramp, behaviour disorders, globus, hysterical aphonia, conversion hysteria with backache or pains in the limbs, coccydynia, frigidity, epileptiform attacks and many other conditions. We have been accustomed to prescribing "nerve tonics", alkaline powders, bromide or phenobarbital, changing their glasses, or ordering a holiday, with indifferent results.

Recently Evan Jones, of Sydney, Bostock, of Brisbane, T. A. Ross in England, Kraines in America and others have indicated that most of these illnesses respond dramatically

to psychotherapy, and experience has shown that some can be cured in an hour.

Although these cases comprise half the work of the general practitioner, our medical periodicals are almost silent on the subject, and this letter is an appeal for more articles on the functional disorders in this journal.

Yours, etc.,

A. A. PAIN.

142, Concord Road,  
Concord,  
New South Wales.  
January 19, 1946.

## Naval, Military and Air Force.

### APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Number 9, of January 17, 1946.

#### PERMANENT NAVAL FORCES OF THE COMMONWEALTH (SEA-GOING FORCES).

*To be Surgeon Captain.*—Surgeon Commander Denis Adrian Pritchard.

#### AUSTRALIAN ARMY MEDICAL CORPS.

NX34968 Lieutenant-Colonel R. F. K. West relinquishes command of 3rd/14th Australian Field Ambulance, 7th November, 1945.

The following officers are placed upon the Regimental Supernumerary List: SX1464 Lieutenant-Colonel R. G. Champion de Crespigny, 7th November, 1945, and WX3416 Major (Temporary Lieutenant-Colonel) G. C. Moss, 8th November, 1945.

WX3330 Colonel (Temporary Brigadier) A. L. Dawkins, O.B.E., E.D., relinquishes the rank of Temporary Brigadier and is transferred to the Reserve of Officers (Australian Army Medical Corps) with the rank of Colonel and is granted the rank of Honorary Brigadier, 14th November, 1945.

VB116930 Local Lieutenant-Colonel F. S. Gorrill ceases to be seconded and relinquishes the rank of Local Lieutenant-Colonel and ceases to be attached to the Australian Military Forces, 24th October, 1945.

2nd/6th Australian General Hospital.—VX65536 Captain J. M. McCracken is placed upon the Regimental Supernumerary List, 27th August, 1945.

102nd Australian Casualty Clearing Station (Australian Imperial Force).—NX107907 Major R. C. Scobie is placed upon the Regimental Supernumerary List, 16th November, 1945.

Q273987 Honorary Captain L. I. Burt is appointed from the Reserve of Officers (Australian Army Medical Corps) and to be Captain, 22nd October, 1945.

*New South Wales Lines of Communication Area: To be Honorary Captain, 16th November, 1945.*—James Lincoln Kelly.

#### ROYAL AUSTRALIAN AIR FORCE.

##### Citizen Air Force: Medical Branch.

The probationary appointments of the following Flight Lieutenants are confirmed with effect from the dates indicated: C. F. Bellemore (267567), 13th March, 1944, D. A. S. Morgan (287465), 19th September, 1945.—(Ex. Min. No. 5—Approved 11th January, 1946.)

## Obituary.

### JAMES WHITSON KEMP BRUCE.

WE regret to announce the death of Dr. James Whitson Kemp Bruce, which occurred on January 22, 1946, at North Sydney, New South Wales.

## Diary for the Month.

- JAN. 31.—South Australian Branch, B.M.A.: Scientific Meeting.  
FEB. 1.—Queensland Branch, B.M.A.: Branch Meeting.  
FEB. 5.—New South Wales Branch, B.M.A.: Organization and Science Committee.  
FEB. 6.—Victorian Branch, B.M.A.: Branch Meeting.  
FEB. 6.—Western Australian Branch, B.M.A.: Council Meeting.  
FEB. 7.—South Australian Branch, B.M.A.: Council Meeting.  
FEB. 8.—Queensland Branch, B.M.A.: Council Meeting.  
FEB. 12.—Tasmanian Branch, B.M.A.: Ordinary Meeting.  
FEB. 12.—New South Wales Branch, B.M.A.: Executive and Finance Committee.  
FEB. 19.—New South Wales Branch, B.M.A.: Medical Politics Committee.  
FEB. 21.—South Australian Branch, B.M.A.: Council Meeting.  
FEB. 21.—Victorian Branch, B.M.A.: Executive Meeting.  
FEB. 22.—Queensland Branch, B.M.A.: Council Meeting.  
FEB. 26.—New South Wales Branch, B.M.A.: Ethics Committee.  
FEB. 27.—Victorian Branch, B.M.A.: Council Meeting.  
FEB. 28.—South Australian Branch, B.M.A.: Scientific Meeting.  
MARCH 1.—Queensland Branch, B.M.A.: Branch Meeting.  
MARCH 2.—Tasmanian Branch, B.M.A.: Annual Meeting.  
MARCH 5.—New South Wales Branch, B.M.A.: Organization and Science Committee.

## Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

*New South Wales Branch* (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmalm United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phoenix Mutual Provident Society.

*Victorian Branch* (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

*Queensland Branch* (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

*South Australian Branch* (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

*Western Australian Branch* (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia. All Public Health Department appointments.

## Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2).

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such a notification is received within one month.

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